State of Hawaii
Department of Health

Child and Adolescent
Mental Health Division

# Annual Evaluation Report
# Fiscal Year 2004

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**Executive Summary**

This report summarizes the results of the annual internal evaluation for fiscal year 2004 conducted by the Child and Adolescent Mental Health Division (CAMHD). The purpose of this report is to provide detailed analysis and critical review of the information gathered during the annual evaluation process. In general, the past year has been characterized by stabilization of CAMHD's population and services. The overarching finding from FY 2001 to FY 2003 was that of statewide decline in CAMHD's population. This decline was greatly reduced during FY 2004 with some geographic regions showing absolute growth. Population expansion occurred in the areas of health- (i.e., QUEST) and juvenile justice-related services. CAMHD also increased its service output in terms of the number of youth with services procured and the total number of service hours procured. This increased output was associated with increased input of financial resources. This expansion of services occurred in a system that was less efficient due to increases in contracted rates for providers and increased utilization of moderately restrictive out-of-home services, most notably community residential services. Analysis of child functioning and service needs found that the majority of youth experience better lives during the time that they receive services from CAMHD, and that youth are achieving such improvements at a more rapid pace in recent years.

Although the majority of CAMHD's youth are experiencing better lives, room for improvement remains. Focused evaluation of CAMHD's evidence-based services initiatives provided both reason for optimism and cause for determined change. The primary measurements of treatment targets (i.e., diagnosis & monthly treatment and progress summary) were found to be of fair, but generally not good, stability over short time periods. These measures bore meaningful relations to one another, which provide a basis for their validity. Specific treatment practices were reliably coded by the Evidence-Based Services Committee and were fairly stable. The vast majority of CAMHD youth had problems for which evidence-based services were available, yet a portion had additional problems for which empirically supported practices were not available. Comparison of actual care to empirically prescribed practices found that actual care included both evidence-based and non-evidence based practices. Further, actual care tended use a greater variety of practices and to rely on less frequently supported practices than typical empirically supported treatment protocols.

## Executive Summary: Key Results

This report summarizes the results of the annual internal evaluation for fiscal year 2004 conducted by the Child and Adolescent Mental Health Division (CAMHD). The purpose of this report is to provide detailed analysis and critical review of the information gathered during the annual evaluation process.

### Overall Population

1. The size of the total registered population of youth declined by 3% (n = 2,447) from fiscal year 2003, which was a much smaller decrease than prior years (28% average decline) and suggests that the CAMHD population may be stabilizing.

2. Population decline did not occur statewide as in prior years with the Maui (+ 32%) and Hawaii (+ 10%) Family Guidance Centers showing absolute growth.

3. Growth occurred in juvenile justice-related services provided through the Family Court Liaison Branch (n = 188, 28% increase) and in health-related services to QUEST youth (n = 915, 58% increase). The education-related service population continued to decline (n = 1,954, 14% decrease) but remained the most common subpopulation.

4. Gender composition (67% male; 33% female) remained stable, whereas average age continued its slow decline (- 0.4 years, M = 14.2, SD = 3.4).

5. The three most common diagnostic categories remained the same as previous years with attentional disorders (45%), disruptive behavior disorders (45%), and mood disorders (31%), but the comorbidity rate continued to increase (+3%).

6. Ethnic group composition remained mostly stable with a slight increase (+3%) for Multiethnic group.

7. Youth tended to enter CAMHD services with impaired functioning that required multiple intensive and integrated mental health services and were discharged with functioning that was appropriate for continued outpatient management.

8. Reliable improvements in functioning and reduced service needs were observed in approximately six out of ten youths, whereas deterioration was observed in one out of ten youths. The average effect size for improvement was + 1.0 SD over baseline functioning.

### Service Utilization

1. Despite the slight decrease in population size, the proportion of CAMHD youth with services procured from CAMHD's provider network increased by 4%, the total number of service hours purchased increased by 10%, the average cost per youth with services procured increased by 17.6%, and total service expenditures increased by 22.5%.

2. Thus, CAMHD increased its total service output by serving a greater number of youth at a higher intensity. This increased output was associated with an increased input of total service expenditures and a somewhat lower fiscal efficiency (i.e., increased cost per hour and cost per youth). During fiscal year 2004, CAMHD increased its reimbursement rates for its providers.

3. The relative proportion and total number of hours procured for out-of-home services (i.e., hospital residential, community residential, therapeutic group homes, and therapeutic foster homes) continued to increase and in-home services continued to decrease.

4. Youth are receiving a greater proportion of all of their services in out-of-home settings even if they receive in-home services at some point during the year.

5. Out-of-home service increases were most notable in community residential services and less so in therapeutic group homes.

6. Utilization of the most restrictive out-of-home services (i.e., out-of-state and hospital residential) was relatively stable, as was utilization of therapeutic foster homes.

7. Multisystemic therapy and community high-risk residential services both experienced declines in utilization and efficiency during FY 2004.

8. Approximately one out of every two youth experienced a care coordinator change and one out of every nine experienced a provider agency change.

Evidence-Based Services

1. The consistency between two diagnostic assessments conducted within 90 days of each other tended to be mediocre. Consistency was fair to poor for the four most common diagnostic problems faced by CAMHD youth (i.e., attentional, disruptive, mood, and anxiety), but was good for some of the less prevalent problems faced by CAMHD youth (i.e., psychotic and substance related disorders).

2. Preliminary support for the reliability of the new Monthly Treatment and Progress Summary was evident in that treatment targets and practices were identified with a good degree of consistency over a one-month period and a fair degree of consistency over a three-month period.

3. Diagnoses and treatment targets were related in a meaningful fashion and provided preliminary support for the convergent and discriminant validity of the Monthly Treatment and Progress Summary.

4. CAMHD adopted a standard set of practice definitions for coding the Monthly Treatment and Progress Summary and for reviewing of the evidence-based services literature. This created the opportunity to compare actual care in the CAMHD system to empirically supported protocols.

5. The Evidence-Based Services Committee was able to reliably code treatment practices in empirically supported treatment protocols by using the standard codes.

6. In their review, the Evidence-Based Services Committee has identified evidence-based treatment for the primary problems encountered by 89% of CAMHD's youth.

7. One-third of CAMHD youth had a pure diagnosis for which an evidence-based treatment was available and 94% youth had at least one diagnosis (primary or additional) for which an evidence-based treatment was available.

8. Three out of ten youth had at least one primary or additional diagnosis for which an evidence-based treatment was not available, and therefore an evidence-based treatment existed for all diagnoses of 70% of the youth with a mental health disorder.

9. On average, providers reported using approximately 19 – 20 different practices per youth over the course of the year. Both empirically supported and non-supported practices were generally used. The use of empirically supported practices varied by problem area from a low of 45% for youth with diagnoses in the attention and hyperactivity category to a high of 64% for youth with anxiety and avoidant diagnoses.

10. Compared to empirically supported protocols, actual care tended to use a greater variety of practices that received less frequent support in research studies. For example, 97% of the treatment groups in research studies finding positive effects for the treatment of anxiety or avoidant behavior used the practice of exposure. In actual care, the practice of exposure was reportedly used with 17% of youth with a pure

anxiety disorder diagnosis. Alternatively, emotional processing was included in 3% of the efficacious treatment groups studied and was reportedly used with 56% of youth with a pure anxiety disorder diagnosis in actual care.

11. Practice patterns were generally similar for primary and pure diagnostic groups with the exception that a greater variety of practices were used with primary diagnostic groups that included comorbid conditions.

## Introduction

The Hawaii Department of Health is organized into three administrative units, Behavioral Health Services, Health Resources, and Environmental Health. The Child and Adolescent Mental Health Division (CAMHD) is a division of the Department of Health's Behavioral Health Services Administration, which also includes the Adult Mental Health Division and the Alcohol and Drug Abuse Division. The mission of CAMHD is to provide timely and effective mental health services to children and youth with emotional and behavioral challenges, and their families. These services are provided within a system of care that integrates Hawaii's Child and Adolescent Service System Program principles, evidence-based services, and continuous monitoring and improvement.

The purpose of the present report is to provide detailed analyses and critical review of the information gathered during the annual evaluation process. CAMHD gathers a wide variety of information about the performance of its operations. This information may be summarized into five major categories. First, population information is collected to understand the characteristics of the children, youth, and families that are served. Second, service information is compiled regarding the type and amount of direct care services used by children, youth, and families. Third, financial information is gathered about the cost of services. Fourth, system information is collected about the quality and operations of the statewide infrastructure needed to support children, youth, and families. Finally, outcome information is examined to determine the extent to which services provided lead to improvements in the functioning and satisfaction of children, youth, and families.

To provide consistency with last year's evaluation (Daleiden, 2003), the present report begins by presenting the core fiscal year 2004 (July 1, 2003 through June 30, 2004) information in the same format and along with information from the fiscal year 2003 evaluation. This was intended to promote understanding of the current system in the context of prior years. As with last year's evaluation, the goal of the first portion of this report was to describe and analyze changes to CAMHD over the past four fiscal years from July 1, 2000 to June 30, 2004, with particular emphasis on changes during the past year. When interpreting these finding, it is important to keep in mind that data from prior years were adjusted to remove youth who were transferred to the Department of Education and the Department of Health Developmental Disabilities Division during the transition to school-based behavioral health services (for details see Daleiden, 2003). Because no major systemic restructuring occurred during fiscal year 2004, results for the entire population of youth registered with CAMHD are reported.

The analytic framework described by Aday, Begley, Lairson, and Slater (1998) and discussed in the context of system of care research by Rosenblatt and Woodbridge (2003), was used to organize this first section of the evaluation report. This framework identifies the three key components of heath services research as equity, efficiency, and effectiveness. In the present application, equity analysis involved examination of congruence and disparity across groups (i.e., age, gender, ethnic, geographic region, and diagnostic) in services and expenditures. Efficiency analysis involved comparing input to output ratios for services (e.g., cost per youth, cost per service hour, service hours per youth). Effectiveness included analysis of the benefits of services in terms of child functioning and service needs.

The second section of this year's evaluation focused on issues related to CAMHD's implementation of evidence-based services. This focus area was selected to coincide with two major initiatives. First, a new monthly treatment and progress summary was initiated throughout CAMHD's provider network that restructured how service providers report their regular service activities. Second, CAMHD's Evidence-Based Services committee completed an initial coding of the treatment protocols identified as empirically supported in their research review (CAMHD, 2004). Taken together, these initiatives provide for a unique look at the type of services provided to consumers of CAMHD services and at the consistency between actual services and services identified as evidence-based.

## Method

### Data Sources

Data for this report were gathered from a variety of sources. The primary source of information is the Child and Adolescent Mental Health Management Information System (CAMHMIS), which supports registration of child and youth with CAMHD, authorization of services, electronic billing for services, and child status monitoring functions. System information was collected from independent databases maintained by numerous offices and committees within CAMHD. The CAMHD Administrative Services Office maintains the databases for QUEST enrollment and manual billing information for intensive in-home services. The Clinical Services Office maintains a database of youth placed in out-of-home settings based on weekly provider census reports. The Performance Management Office maintains a database of sentinel events based on incident reports submitted by providers. The CAMHD research and evaluation section (RES) was responsible for merging and validating information from this multitude of databases, and is responsible for any errors in data or analysis reported here.

Child and Adolescent Mental Health Information System (CAMHMIS) Fields. Information was gathered and entered into CAMHMIS through the standard operating procedures of the regional Family Guidance Centers. Generally, care coordinators are responsible for gathering data from families and professionals and for organizing completion of child status measures on a quarterly basis. Detailed information about the structure of the CAMHMIS database is beyond the scope of the present report.

### Population Variables

**Admissions** were defined to include both new registrations and repeated registrations without a discharge within the preceding one-month period. New registrations were counted when a new record is created for a youth previously unknown to CAMHD with a registration start date within the reporting period. Repeated registrations were identified whenever a previously known youth had at least one registration record during the reporting period indicating a change in registration status from a discharged status to a registered status.

**Age in Years** was defined as the difference between a youth's date of birth and the final day of each fiscal year (i.e., June 30 of 2001, 2002, and 2003, respectively).

**Agency Involvement** data (i.e., Department of Human Services (DHS), court, and incarcerated/detained) were entered into CAMHMIS in the form of a start date and end date of involvement with each agency. A youth was defined as involved with a specific agency if they had an active record with that agency that included a start date prior to the final day of the reporting period (e.g., June 30, 2003) without an end date prior to the period end.

**Diagnostic Status** was defined based on Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) codes entered into CAMHMIS. Youth registered with CAMHD receive annual diagnostic evaluations from the Department of Education, DOE providers, or occasionally CAMHD staff. Children and youth may receive multiple diagnoses on the first two axes of the DSM system. Diagnoses on either axis whether primary, secondary, or tertiary were included in analysis of comorbid diagnoses.

**Discharges** were recorded when a youth had at least one registration record during the reporting period indicating a change in registration status from registered status to discharged status.

**Ethnicity** was based on client self-presentation and was coded directly in CAMHMIS as African-American, African Other, American Indian, Asian Other, Caucasian Other, Chamorro, Chinese, Filipino, Hawaiian, Hispanic Other, Japanese, Korean, Micronesian, Mixed Ethnicity, Pacific Islander Other, Portuguese, Puerto Rican, or Samoan. For some analysis, these categories are aggregated into the following groups: American Indian or Alaska Native, Asian, Black or African American, Hispanic, Multiethnic, Native Hawaiian or Pacific Islander, and White.

**Family Guidance Center** (FGC) was defined as the most recent center to which youth were registered as of the final day of the reporting period.

**Gender** was based on client self-presentation and was coded as either female or male.

**Mental Health Status** described the source of the youth's eligibility for CAMHD services as either Individuals with Disabilities Education Act (IDEA), Rehabilitation Act Section 504, Mental Health Only (not related to special education), or Pending determination, and was coded directly in CAMHMIS.

Service Variables

**Intensive Mental Health Services** (also referred to as High-End services) were defined to include psychosexual assessments, intensive home and community based services (including multisystemic therapy), day treatment, partial hospitalization, intensive day stabilization, therapeutic foster homes, therapeutic group homes, respite home, community-based residential, community high-risk residential, hospital-based residential, acute inpatient, out-of-state, and respite services. Intensive services also included flex funded services for any of these levels of care.

**Monthly Treatment and Progress Summary** (MTPS; CAMHD 2003). The MTPS is a locally constructed clinician report form designed to measure the service format, service setting, treatment targets, clinical progress, intervention practice elements, and provider outcomes on a monthly basis. In addition to providing structured response options from which clinicians could select, the MTPS included other fields for each domain that allowed clinicians to write open-ended responses that were not addressed by the predefined fields. For the format and setting questions, clinicians are asked to indicate all formats (individual, group, parent, family, teacher, or other) and settings (home, school, community, out of home, clinic/office, or other) in which the youth received services during the reporting month. Clinicians are then asked to indicate up to 10 target competencies or concerns, which were the focus of treatment during the reporting month. The targets are selected from a list of 48 predefined targets and two additional open-response fields are provided. Clinicians then provide a progress rating for each target that describes the degree of progress achieved between the child's baseline level of functioning and the goal specified for the target. Progress ratings are provided on a 7-point scale with the anchors of *Deterioration < 0%, No Significant changes 0 – 10%, Minimal Improvement 10 – 30%, Some Improvement 31 – 50%, Moderate Improvement 51 – 70%, Significant Improvement 71 – 90%,* and *Complete Improvement 91 – 100%*. Next, clinicians are asked to indicate all of the specific intervention strategies (a.k.a., practice elements) that were used with the child and family during the month. The MTPS records 55 predefined intervention practice elements (e.g., activity scheduling, assertiveness training, biofeedback, etc.) and allows for the write-in of up to three additional intervention practice elements per month. Finally, the MTPS provides a number of optional fields that allow providers to report other measure of outcomes that they may collect including the ASEBA, CAFAS, CALOCUS, whether the youth was arrested during the month, and the percent of school days attended. These forms and the structured codebook defining the interventions are available on the CAMHD website. Statewide training was provided on the completion of the form and definitions of various practice elements. Additional videotaped training is available upon request to CAMHD's Clinical Services Office.

**Out-of-home Placement** was an indicator variable identifying if a youth received any out-of-home service during the period. Out-of-home services included out-of-state, acute inpatient, hospital residential, community high risk residential, community residential, therapeutic group home, and therapeutic foster home services. When specifically noted, some analysis may include services provided while youth were detained or incarcerated as out-of-home services.

**Out-of-home Service Intensity** was calculated as the proportion of hours recorded for out-of-home services during the period divided by the total service hours during the period (for details see service intensity definition below).

**Quest Involvement** was determined through a daily transaction that examines the list of Quest eligible youth published by Med-Quest Division and identifies those youth actively registered in CAMHMIS on that day. A youth was defined as Quest involved if the youth was recorded in the CAMHD Quest Eligibility database as eligible for Quest on one or more days during the reporting period.

**Receipt of Services** was calculated based on records that were accepted as payable during billing adjudication for the hospital residential, community residential, therapeutic group home, therapeutic foster home, respite home, intensive day stabilization, intensive in-home, and less intensive levels of care. Service information for the out-of-state, community high risk, multisystemic therapy, flex, and respite is based on the CAMHMIS service authorization database augmented by information based on manual billings collected by the Fiscal Office and weekly provider census data collected by the Clinical Services Office. A youth is identified as receiving a service if there was a record of payment for the service on at least one day during the quarter. Thus, the service receipt counts are unduplicated within a level of care, but are duplicated across levels of care. For example a youth who received one month of hospital residential and two months of intensive in-home services would be recorded as receiving both of these levels during the period.

**Service Changes: Care Coordinator Changes** were defined as any change in the assignment of a care coordinator to a youth as recorded in CAMHMIS child registration. The total number of changes across all youth is reported, as are the average number of changes per month, and the average number of changes per registered youth during the reporting period (i.e., FY 2003)

**Service Changes: Provider Agency Changes** was calculated as the number of provider agency changes per period. For example, a youth who moved from a community residential provider to a multisystemic therapy provider during a period would record one provider change, whereas a youth moving from community residential to hospital residential and back to community residential services during the period would record two changes. A youth changing providers within a level of care would record a provider change whereas a youth changing levels of care within a provider agency may not. This variable was selected to provide a gross indicator of the frequency with which youth experience major service transition, but it does not capture the frequency of changes to individual therapists within a provider agency.

**Service Intensity** was defined as the number of service hours per reporting period. Service units are recorded in CAMHMIS as 15-minute units for home and community services and daily units for out-of-home services. To create a relatively comparable metric across levels of care, daily out-of-home services were converted to hours at a rate of 6.5 hours per day. Because daily utilization of multisystemic therapy was not recorded for fiscal years 2001 to 2002, hours of service were allocated based on the practice standard formula of 80 hours during the first month of service, 40 hours during the second month, and 20 hours for subsequent months.

Fiscal Variables

**Cost per Level of Care (LOC)** was calculated as the total cost (US$) of services for a given level of care divided by the unduplicated count of youth receiving services at that level of care. Therefore, these expenditures are unduplicated across levels of care and when summed across all levels of care will equal the total expenditures during the period for the study sample.

**Cost per Youth per Level of Care (LOC)** represented the average cost (US$) for services received by youth at the specified level of care during the period. This variable describes the average cost of providing the specific service to youth. If a youth received any other service during the period, this value will be less than the total cost of providing services to that youth.

**Total Cost of Services** was the sum of all service expenditures (US$) recorded during the period. When presented by level of care, the total cost of services was allocated to level of care based on youth counts that were duplicated across levels of care, but unduplicated within a level of care. Therefore,

these expenditures are duplicated across levels of care and will sum to a value greater than the total real expenditures during the period.

**Total Cost per Youth** represented the average cost (US$) for all services received by youth during the period. For example, the total out-of-state cost per youth includes total expenditures for youth who received any out-of-state service. If a youth receive two weeks of out-of-state services and two months of multisystemic therapy for a total quarterly expenditure of $20,000, this amount would be included in calculating the averages for both the out-of-state services and multisystemic therapy levels of care. This variable describes the total cost during the period of providing services to a youth receiving one or more days of service at a specified level of care.

Outcome Variables

**ASEBA Child Behavior Checklist** (CBCL; Achenbach, 1991a; Achenbach & Rescorla, 2001). The CBCL is a 113-item child behavior problem checklist completed by parents, parent-surrogates, or others who know the children in family-like settings. Respondents are asked to rate items on a three point scale from not true to very true or very often that describe a youth "now or within the past 6 months." It provides total, broadband, syndrome, and competence scales. The broadband problem scales measure an internalizing factor and an externalizing factor. The syndrome scales measure withdrawn behavior, somatic complaints, anxious/depressed behavior, delinquent behavior, aggressive behavior, social problems, thought problems, and attention problems. The competence scales assess school, activity, and social competence. Raw scores and T-scores (Mean = 50, SD = 10) based on gender and age groups from the standardization sample are available. Achenbach (1991a) reported acceptable internal consistency ($\alpha$ = .90 internalizing, $\alpha$ = .93 externalizing) and test-retest reliability (one-week r = .89, .93; one-year r = .79, .87; two-year r = .70, .86) for the CBCL. Achenbach (1991a) also reviewed numerous studies supporting the validity of the CBCL relative to other parent-report behavior checklists, clinic-referral status, and categorical psychiatric diagnosis. T-scores were used in all analyses. Achenbach & Rescorla (2001) reported internal consistency ($\alpha$ = .90 - .92 broadband, $\alpha$ = .82 - .92 syndrome, $\alpha$ = .82 - .93 competence), parent agreement (r = .72 - .85 broadband, r = .65 - .85 syndrome, r = .57 - .76 competence), 8-day test-retest reliability (r = .91 - .92 broadband, r = .67 - .88 syndrome, r = .83 - .91 competence), 12-month stability (r = .80 - .82 broadband, r = .64 - .82 syndrome, r = .62 - .76 competence), and 24-month stability (r = .70 - .82 broadband, r = .56 - .81 syndrome, r = .43 - .73 competence) for the CBCL. The ASEBA information is collected on optical scan forms that are sent via state courier to the CAMHD Management Information System (MIS) office for processing and uploading to CAMHMIS.

**ASEBA Teacher Report Form** (TRF; Achenbach, 1991b; Achenbach & Rescorla, 2001). The TRF is a 113-item behavior problem checklist that is completed by teachers or school personnel who know the child in school-like settings. Respondents are asked to rate items on a three point scale from not true to very true or very often that describe a pupil "now or within the past 2 months." It provides total, broadband, syndrome, and competence scales. The broadband problem scales measure an internalizing factor and an externalizing factor. The syndrome scales measure withdrawn behavior, somatic complaints, anxious/depressed behavior, delinquent behavior, aggressive behavior, social problems, thought problems, and attention problems. The TRF competence (a.k.a. adaptive functioning) assessment differ from the other ASEBA forms and yields the following scales: academic performance, working hard, behaving appropriately, learning, and happy. Raw scores and T-scores (Mean = 50, SD = 10) based on gender and age groups from the standardization sample are available. Achenbach & Rescorla (2001) reported internal consistency ($\alpha$ = .90 - .95 broadband, $\alpha$ = .72 - .95 syndrome, $\alpha$ = .90 total adaptive functioning), teacher agreement (r = .58 - .69 broadband, r = .28 - .69 syndrome, r = .37 - .58 competence), 16-day test-retest reliability (r = .86 - .89 broadband, r = .60 - .96 syndrome, r = .78 - .93 competence), 4-month stability (r = .48 - .69 broadband, r = .38 - .84 syndrome) for the TRF. The ASEBA information is collected on optical scan forms that are sent via state courier to the CAMHD Management Information System (MIS) office for processing and uploading to CAMHMIS.

**ASEBA Youth Self-Report** (YSR; Achenbach, 1991c; Achenbach & Rescorla, 2001). The YSR is a 112-item behavior problem checklist that is completed by youth between 11 and 18 years of age. Respondents are asked to rate items on a three point scale from not true to very true or very often that describe themselves "now or within the past 6 months." It provides total, broadband, syndrome, and competence scales. The broadband problem scales measure an internalizing factor and an externalizing factor. The narrowband problem scales measure the following dimensions: withdrawn behavior, somatic complaints, anxious/depressed behavior, delinquent behavior, aggressive behavior, social problems, thought problems, and attention problems. Raw scores and T-scores (Mean = 50, SD = 10) based on gender and age groups from the standardization sample are available. The YSR competence scales measure activity and social competence, but not school competence. Achenbach & Rescorla (2001) reported internal consistency ($\alpha$ = .90 broadband, $\alpha$ = .71 - .90 syndrome, $\alpha$ = .55 - .75 competence), 8-day test-retest reliability (r = .80 - .89 broadband, r = .67 - .88 syndrome, r = .83 - .91 competence), and 7-month stability (r = .53 - .59 broadband, r = .36 - .63 syndrome, r = .43 - .59 competence) for the YSR. The ASEBA information is collected on optical scan forms that are sent via state courier to the CAMHD Management Information System (MIS) office for processing and uploading to CAMHMIS.

**Child and Adolescent Functional Assessment Scale** (CAFAS; Hodges, 1998). The CAFAS is a 200-item clinician report scale that measures youth's level of functional impairment. Based on their knowledge and experience with the child, raters review behavioral descriptions ordered by level of impairment within eight domains of functioning. The subscales of School Role Performance, Home Role Performance, Community Role Performance, Behavior Toward Others, Mood/Emotions, Mood/Self-Harmful Behavior, Substance Use, and Thinking are calculated by scoring the highest level of impairment (i.e., severe = 30, moderate = 20, mild = 10, no/minimal = 0) endorsed within the respective domain of items. An eight-scale total score is calculated by summing across the eight subscales, whereas a five-scale total is calculate by summing the raw scores from behavior, substance use, and thinking scales with the maximum score from the school, home, and community role performance scales and with the maximum score from the emotions and self-harm. The CAFAS has been found to have acceptable internal consistency across items, inter-rater reliability across sites, and stability across time (Hodges, 1995; Hodges & Wong, 1996). Studies of concurrent validity have found that CAFAS scores are related to severity of psychiatric diagnosis, intensity of care provided, restrictiveness of living settings, juvenile justice involvement, social relationship difficulties, school-related problems, and risk factors. Studies of predictive validity have found that CAFAS scores from intake assessments predict service utilization and cost for services. Care coordinators serve as the primary raters for the CAFAS and results are entered directly into a networked computer scoring program by care coordinators or statistics clerks.

**Child and Adolescent Level of Care Utilization System** (American Academy of Child and Adolescent Psychiatry, 1999). The CALOCUS is a clinician rating form. Clinicians make dimensional ratings on a five-point scale in the domains of risk of harm, functional status, comorbidity, environmental stress, environmental support, resiliency and treatment history, child treatment acceptance and engagement, and parent treatment acceptance and engagement. These ratings may be summed to yield a total score, but are also combined through a detailed algorithm into a level of care judgment into one of seven categories: basic services (Level 0), recovery maintenance and health management (Level 1), outpatient services (Level 2), intensive outpatient services (Level 3), intensive integrated service without 24-hour medical monitoring (Level 4), non-secure, 24-hour, medically monitored services (Level 5), and secure, 24-hour, medically managed services. Preliminary reliability (Ted Fallon, 2002, personal communication) indicated that intrajudge agreement based on clinical vignettes ranged from ICC (2,2) = .57 - .95 across scales with all scale above .70 except for environmental stress and child treatment acceptance and engagement. Preliminary validity analysis found that the CALOCUS total score correlated -.33 with the Child Global Assessment of Scale (CGAS) and .62 with the CAFAS eight-scale total score. Care coordinators serve as the primary raters for the CALOCUS and results are entered directly into a networked computer scoring program by care coordinators or statistics clerks.

## Annual Results

Population Characteristics

The final population of youth selected for this evaluation represented all youth registered to CAMHD for one or more days during fiscal year 2004 (i.e., the period from July 1, 2003 to June 30, 2004). This population was compared to the populations of youth registered during fiscal years 2001 to 2003. As described in last year's evaluation (Daleiden, 2003), to control for major system reorganizations, youth receiving low-end services only and youth with Pervasive Developmental Disorders were excluded from the final populations for fiscal years 2001 to 2003. Therefore, only those who would be expected to qualify for services under eligibility guidelines applicable during fiscal year 2004 were compared.

CAMHD provided case management services for 2,447 youths during FY 2004. This represents a population decline of 3% between FY 2003 and FY 2004 and indicates that the prior trend of major yearly decreases in population has leveled out. Between FY 2003 and FY 2004, increases were observed for both new admission rate (by 15%) and repeat admission rate (by 9%) for registered youth. Nearly one-half (45%) of the youth registered during FY 2004 were admitted for the first time during the year. An 8% decrease was observed for the discharge rate from 48% in FY 2003 to 40% in FY 2004. When admission and discharge rates were examined for those youth with additional services procured through CAMHD provider network, admission rates were stable and discharge rates decreased from 40% in FY 2003 to 33% in FY 2004. Thus, CAMHD's efforts to expand identification and recruitment of new youth into the system have apparently resulted in many new admissions. One important factor accounting for the increased admission rate is the continued development of the Family Court Liaison Branch (FCLB), which provides assessment and treatment for youth at the Detention Home on Oahu and the Hawaii Youth Correctional Facility. Another factor is likely the continued development of referrals to CAMHD's Support for Emotional and Behavioral Development (SEBD) program.

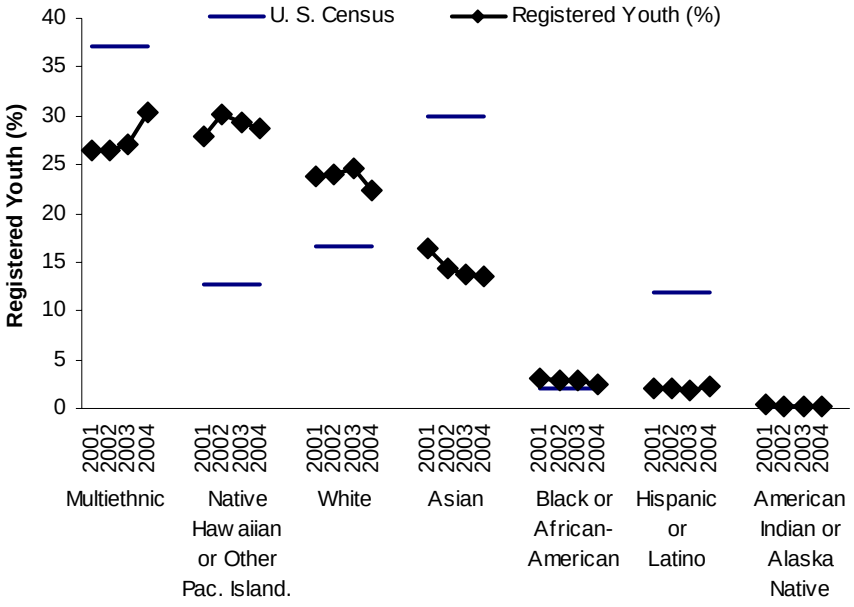
The demographic composition remained relatively stable between FY 2003 and FY 2004. Of the total registered youths for FY 2004, 812 were female (33%) and 1,635 were male (67%). These gender figures are similar to those for FY 2003, where 32% were females and 68% were males. Changes in ethnicity composition between FY 2003 and FY 2004 involved growth in the Multiethnic group (27 – 30%), which was offset by decreases in the relative proportion of Native Hawaiian (25 to 23%), Caucasian (22 – 21%), and Japanese (5 - 4%) group (See Table 1). The average age of youth between FY 2003 and FY 2004 remained similar (14.4 years and 14.2 years) and the distributions remained stable (e.g., SD = 3.4).

When CAMHD population demographics were examined in comparison to results from the 2000 US Census (see Figure 1), several interesting patterns emerged that tended to parallel national trends. First, although the proportion of females and

Table 1. Percent of CAMHD population by ethnic group.

| | 2001 % | 2002 % | 2003 % | 2004 % |
|---|---|---|---|---|
| **Black or African American** | **3.0** | **2.8** | **2.8** | **2.5** |
| **American Indian and Alaska Native** | **0.4** | **0.2** | **0.3** | **0.2** |
| **Asian** | **16.5** | **14.3** | **13.7** | **13.6** |
| Chinese | 1.3 | 0.8 | 0.7 | 0.7 |
| Filipino | 8.1 | 7.5 | 7.1 | 7.4 |
| Japanese | 5.2 | 4.5 | 4.5 | 4.2 |
| Korean | 0.7 | 0.5 | 0.4 | 0.5 |
| Other Asian | 1.3 | 1.0 | 0.9 | 0.8 |
| **Hispanic or Latino** | **2.1** | **2.1** | **1.9** | **2.2** |
| Puerto Rican | 0.9 | 0.9 | 0.9 | 0.9 |
| Other Hispanic | 1.1 | 1.1 | 1.1 | 1.3 |
| **Native Hawaiian or Pacific Islander** | **27.9** | **30.2** | **29.4** | **28.8** |
| Native Hawaiian | 23.2 | 24.9 | 24.5 | 23.0 |
| Micronesian | 0.4 | 0.3 | 0.4 | 0.5 |
| Samoan | 3.0 | 3.3 | 2.8 | 3.7 |
| Other Pacific Islander | 1.3 | 1.6 | 1.8 | 1.5 |
| **White** | **23.7** | **24.0** | **24.7** | **22.3** |
| Portuguese | 2.9 | 2.7 | 2.8 | 2.6 |
| Other Caucasian | 20.9 | 21.4 | 21.9 | 19.6 |
| **Multiethnic** | **26.5** | **26.4** | **27.1** | **30.4** |
| Not Available | 46.1 | 35.3 | 36.8 | 32.6 |

**Figure 1. CAMHD Ethnic Groups Compared to U. S. Census 2000 for Hawaii Children Under 18 Years of Age**



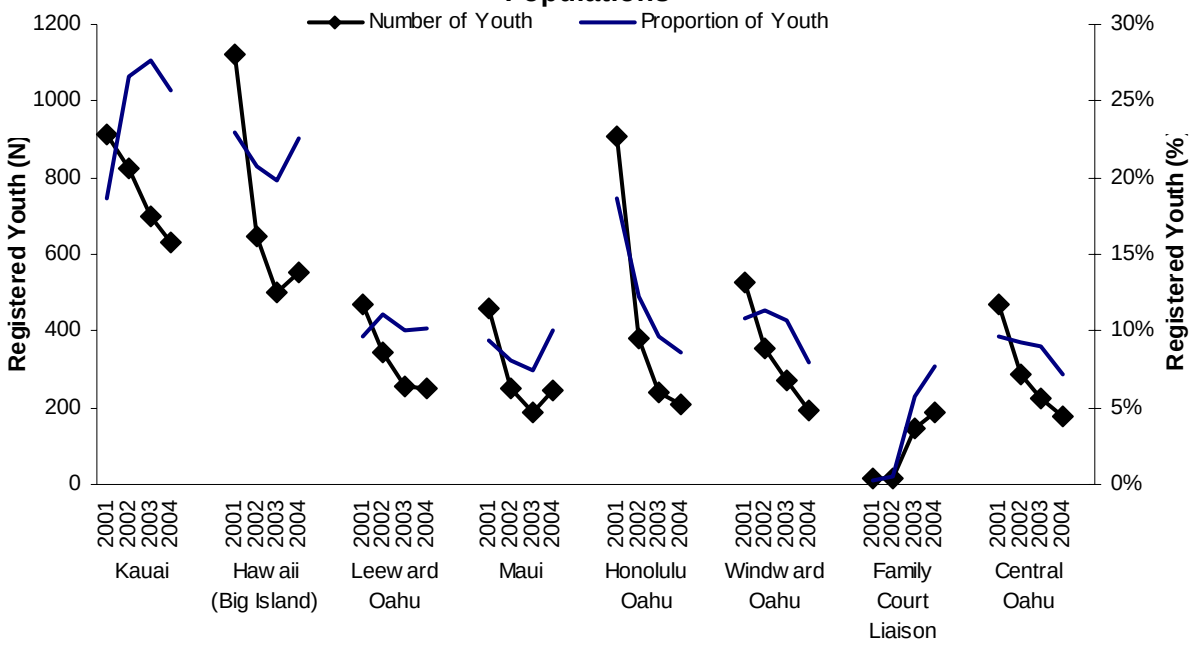

males are roughly balanced in the general population, males were much more likely to receive services from CAMHD. Compared to the population of youth in Hawaii under age 18 years, underrepresented ethnic groups in the CAMHD population were those of Asian (-16%), Hispanic or Latino (-10%), and multiple (-7%) ethnicities. Native Hawaiian or Pacific Islander (+16%) and White (+6 %) youth were disproportionately over-represented. Black or African-American (+0.5%) youth were also somewhat over-represented but accounted for a small portion of both the CAMHD and general populations. Because CAMHD does not use the same procedure for gathering ethnic information as the U. S. census, these results must be interpreted with caution. Specifically, CAMHD does not allow individuals to endorse multiple specific ethnic groups, nor does CAMHD use a separate national origin question regarding Hispanic or Latino heritage. Therefore the observed percentages are likely an underestimate of the true Hispanic representation and are expected to be lower than the census estimates as many youth of Hispanic or Latino origin would be expected to endorse the multiethnic alternative in the CAMHD assessment. Similarly, some youth with multiple ethnic backgrounds may select the single category that they feel best describes the ethnic identification. Because CAMHD cannot determine exactly which ethnicities are represented in the multiethnic group, the source of the under-representation is unclear. During fiscal year 2004, CAMHD initiated changes to how ethnic information is gathered so that results should be more directly comparable to the U.S. Census beginning in fiscal year 2005.

For the FY 2004, IDEA remained the most common mental health status (64% of youth), followed by Section 504 (16%), and Mental Health Only (15%). Compared to FY 2003, decreases were observed for both IDEA (by 4% of registered youth; 10% decrease of IDEA) and Section 504 (by 5% of registered youth; 29% decrease of 504) while an increase was observed for Mental Health Only (9%). The proportion of registered youth eligible for the QUEST health plan was 37% for FY 2004, which was an increase of 15% of the registered population over FY 2003 (i.e., a 58% increase of QUEST). These trends are again consistent with the development of the SEBD program and juvenile justice services through FCLB. Taken together these findings suggest that the reduction in educationally-related intensive mental health services associated with the development of the Department of Education's school-based behavioral health service has continued, and that this decline has been offset by expanded services through health and juvenile justice related eligibility channels.

A general decrease was observed from FY 2003 to FY 2004 in the proportion of youth registered with and received services by other agencies. The proportion of registered youth involved with the juvenile justice system increased both in terms of the percent with one or more family court hearings (from 21% to 27%) and in terms of incarceration or detention (from 6% to 9%). The proportion of registered youth involved with the Department of Human Services remained stable at 11%. The same pattern was evident with the proportion of youth with services procured was examined. The increase in justice involvement is again consistent with the expand identification and provision of services to youth through the FCLB. However, it is important to note that relative to the other data available, the validity of interagency data remains more questionable due to a lack of clear statewide standards and procedures for capturing and recording this information.

Although several regions continued to show a decline in the total number of youth registered for services, this pattern was not as pervasive statewide as it has been in prior years (see Figure 2). Specifically, the Hawaii Family Guidance Center, the Maui Family Guidance Center, and the Family Court Liaison Branch have all made substantial gains in the total number of registered youth (HFGC: 500 - 551 youth; MFGC: 187 - 246 youth; FCLB: 147 - 188 youth). Due to these regional changes, MFGC surpassed Honolulu Oahu Family Guidance Center (HOFGC) and Windward Oahu Family Guidance Center (WOFGC) in size and FCLB surpassed Central Oahu Family Guidance

**Figure 2. Absolute and Relative Size of CAMHD Family Guidance Center Populations**




Center (COFGC). The Leeward Oahu Family Guidance Center (LOFGC: 10%) population remained relatively unchanged as a proportion of the total population.

When geographic distribution was examined as a proportion of the general population of youth between the ages of 3 and 21 years identified by the US census (see Table 2), results were similar to prior years. The county of Kauai had the highest penetration rate followed by Hawaii, then Maui, and then Honolulu (i.e., Central, Leeward, Windward, and Honolulu FGCs). As in all analysis of Kauai, it is important to keep in mind that unlike the other centers, all youth served by the Mokihana Project are registered with CAMHD, not just youth receiving intensive mental health services. In comparison, the National Association of State Mental Health Program Director (NASMHPD) Research Institute estimated rates of serious emotional disturbance (SED) were between 6 and 12% of the general population of 9 – 17 year-olds residing in Hawaii during 2003.

Examination of primary diagnostic trends suggested considerable stability from FY 2003 to FY 2004. The most common primary diagnostic categories for FY 2004 were attentional disorders (29%), disruptive behavior disorders (24%), and mood disorders (20%). For the most part, prevalence rates for these diagnostic groups continue to fluctuate around their four-year averages, with primary attentional disorders increasing by 3% and primary mood disorder decreasing by 2% from FY 2003 to FY 2004. The rate of adjustment disorders has continued its four-year decline so that adjustment disorders (8%) and anxiety disorders (8%) are present in equal proportion. Prevalence

Table 2: Percent of youth aged 3 – 21 years by county registered with CAMHD.

| | Proportion of U.S. Census 2000 | | | |
|---|---|---|---|---|
| County | 2001 | 2002 | 2003 | 2004 |
| Hawaii (BI) | 2.73 | 1.57 | 1.22 | 1.35 |
| Honolulu | 1.06 | 0.61 | 0.44 | 0.37 |
| Kauai | 5.74 | 5.21 | 4.39 | 3.97 |
| Maui | 1.38 | 0.76 | 0.56 | 0.74 |
| State | 1.55 | 0.99 | 0.80 | 0.78 |

Source: U.S. Census 2000 website

rates for all other primary diagnostic categories remained stable (< 1% change).

The proportion of registered youth with one or more comorbid diagnoses continued its four-year pattern of increase with a change from 65% to 68% between FY 2003 and FY 2004, while the average number of diagnoses per youth fluctuated around its four-year average with a non-significant FY 2003 and FY 2004 decline (M = 1.8 to M = 1.4). When the prevalence of any disorder (primary or additional) in each diagnostic category was examined, the most common diagnostic categories remained were attentional disorders (45%), disruptive behavior disorders (45%), and mood disorders (31%). Anxiety disorders (17%) and substance-related disorders (13%) showed significant increases whereas adjustment disorders (12%) significantly decreased.

Taken together, these diagnostic analyses highlight that attentional, disruptive behavior, and mood problems predominate among CAMHD youth. However, the CAMHD population continues a steady, small-scale evolution toward more youth with comorbid conditions, particularly anxiety and substance-related problems and fewer adjustment disorders.

Population Summary

In summary, CAMHD's three-year trend toward a significantly shrinking population showed signs of tapering off. The overall size of the CAMHD population was 3% smaller in FY 2004 than FY 2003, but this was a much smaller reduction than the average reduction of 28% in the prior two years. The decreases were also not pervasive across geographic regions as in previous years, and the total CAMHD population increased in some regions (i.e., Hawaii and Maui counties). The Family Court Liaison Branch continued its growth, showing a 28% increase over the past year, and the proportion of QUEST-eligible youth rose by 14%, accounting for 37% of all registered youth and 52% of youth with services procured.

These findings are consistent with the notion that CAMHD is showing signs of stabilizing education-related services during the current sustainability period of the Felix Consent Decree and that the CAMHD population is diversifying through growth in health- and juvenile justice-related services. Concurrent with this overall evolution in population, the face of the population is evolving in terms of ethnic group composition and rates of comorbid diagnoses. However, other characteristics such as age, gender, and most common diagnoses remained relatively stable. Thus, the CAMHD population is showing less pronounced but continued change.

Service Characteristics

The overall structure of CAMHD's service array remained stable between 2003 and 2004. The only major alteration was the termination of intensive day stabilization as a standing service. Intensive day stabilization is now accessed on a case-by-case basis through CAMHD's flexible benefit mechanisms. Other service array changes were mostly a matter of volume and implementation not structure.

*Service Population*

The number of youth receiving each service during the study period was examined in terms of the proportion of the unduplicated count of all youth receiving service, the total number of youth receiving service during the period, and the monthly average of the number of youth receiving service. The proportion describes the relative pattern of service utilization and adjusts for the decreasing overall population size over the years, but it is also affected by alternative services offered. The total number of youth receiving service during the period provides an absolute indicator of the size of the service, and the monthly average provides a better estimate of the service population size at any given point in time. The degree of population flow through the service is indicated by the extent to which the monthly average is lower than the total number of youth receiving service (e.g., if all youth received service for the entire period, the monthly average would be equal to the total number served). Therefore, programs with longer lengths of service will have less discrepancy between the unduplicated total count and the average.

Whereas the total number of youth with services procured during the previous three-year study period declined, this past year saw a slight increase from FY 2003 (see Table 3). The portion of the total registered population for whom additional services were procured increased slightly (+ 4%) since last year but was close to the four-year average. Thus, within the CAMHD system, the decline in service population has stabilized and potentially reversed. Out-of-

home services continued to account for an increasing proportion of all services procured (+ 5% over FY 2003). The total yearly census and average monthly census of these services also increased (+ 99 youth, + 46 youth monthly) over the past year, whereas in previous years they tended to decline.

The most striking increase in overall utilization occurred in community residential programs, which displayed both absolute growth and relative growth. Flexibly funded services also experienced sizable growth over the past year. Many other services stabilized over the past year and halted the patterns of absolute declines in population that were present in earlier years (see Figures 3 & 4). Hospital residential, therapeutic group home, therapeutic foster home, respite homes, intensive in-home services and respite services all addressed similar or slightly larger populations. Out-of state services, community high-risk residential, multisystemic therapy, and less intensive services all displayed some decline in absolute size over 2003.

**Figure 3. Absolute and Relative Size of Out-of-Home Services**

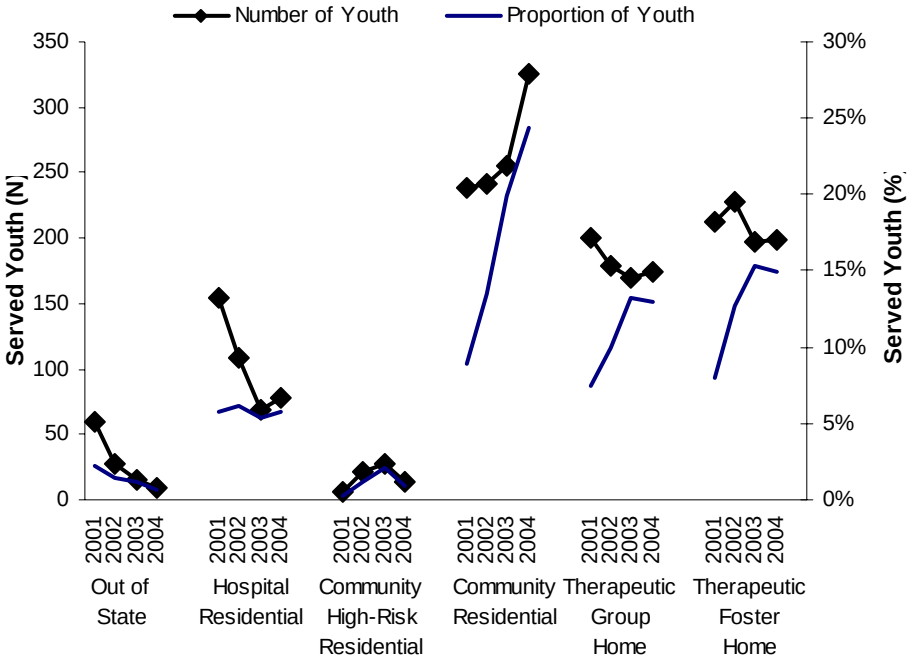



**Figure 4. Absolute and Relative Size of In-Home Services**

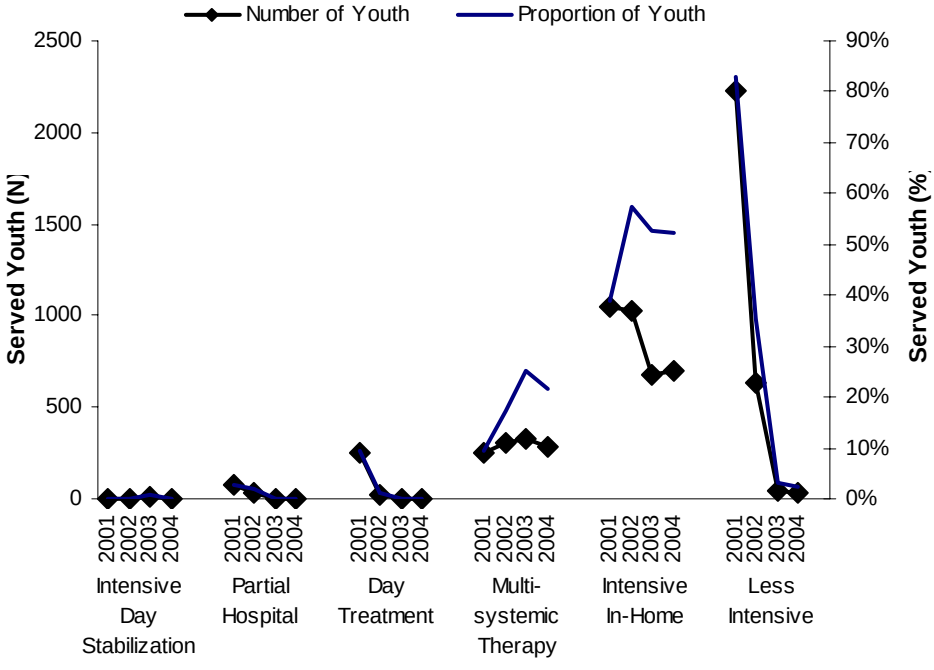


Table 3. Percent, total number, and monthly average of youth receiving one or more days of service by level of care.

| Any Services Procured | Fiscal Year | | | | Fiscal Year | | | | Fiscal Year | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2001 | 2002 | 2003 | 2004 | 2001 | 2002 | 2003 | 2004 | 2001 | 2002 | 2003 | 2004 |
| | % | % | % | % | Total | Total | Total | Total | Ave. | Ave. | Ave. | Ave. |
| Out-of-State | 2.2% | 1.5% | 1.2% | 0.7% | 60 | 27 | 16 | 9 | 41 | 15 | 8 | 6 |
| Acute Inpatient | 0.0% | 0.1% | 0.0% | 0.0% | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hospital Residential | 5.7% | 6.1% | 5.4% | 5.8% | 154 | 109 | 69 | 78 | 42 | 33 | 17 | 18 |
| Community High Risk | 0.2% | 1.2% | 2.1% | 1.0% | 6 | 21 | 27 | 13 | 5 | 17 | 17 | 10 |
| Community Residential | 8.9% | 13.5% | 19.9% | 24.3% | 239 | 242 | 256 | 325 | 106 | 107 | 99 | 131 |
| Therapeutic Group Home | 7.5% | 10.0% | 13.2% | 13.0% | 200 | 179 | 170 | 174 | 84 | 78 | 62 | 74 |
| Therapeutic Foster Home | 8.0% | 12.7% | 15.3% | 14.9% | 213 | 228 | 197 | 199 | 120 | 129 | 107 | 108 |
| Respite Home | 0.0% | 0.0% | 0.3% | 0.6% | 0 | 0 | 4 | 8 | 0 | 0 | 0 | 1 |
| Intensive Day Stabilization | 0.0% | 0.0% | 0.9% | 0.0% | 0 | 0 | 11 | 0 | 0 | 0 | 1 | 0 |
| Partial Hospitalization | 2.7% | 1.8% | 0.1% | 0.1% | 71 | 32 | 1 | 1 | 22 | 9 | 0 | 0 |
| Day Treatment | 9.3% | 1.1% | 0.0% | 0.0% | 249 | 19 | 0 | 0 | 135 | 6 | 0 | 0 |
| Multisystemic Therapy | 9.4% | 17.3% | 25.2% | 21.6% | 253 | 310 | 323 | 289 | 86 | 108 | 107 | 88 |
| Intensive In-Home | 38.9% | 57.4% | 52.8% | 52.1% | 1,043 | 1,030 | 678 | 697 | 522 | 593 | 273 | 306 |
| Flex | 18.4% | 19.3% | 21.9% | 27.1% | 494 | 346 | 281 | 362 | 138 | 92 | 82 | 110 |
| Respite | 6.7% | 7.9% | 3.8% | 4.6% | 180 | 141 | 49 | 61 | 102 | 75 | 20 | 28 |
| Less Intensive | 83.0% | 35.3% | 3.3% | 3.3% | 2,223 | 633 | 42 | 29 | 1,158 | 281 | 7 | 7 |
| Out-of-Home Total | 27.7% | 38.5% | 47.2% | 51.7% | 742 | 690 | 606 | 705 | 402 | 402 | 333 | 379 |
| Unduplicated Total (% of Registered) | 54.9% | 57.6% | 50.9% | 54.6% | 2,679 | 1,793 | 1,284 | 1,337 | | | | |

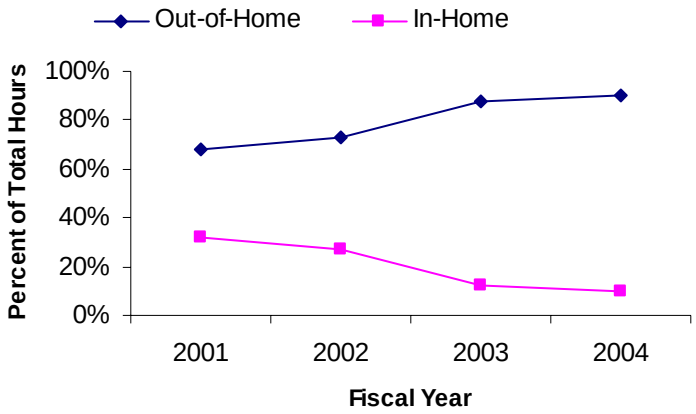
Note: Acute inpatient was not a standard CAMHD service, but was purchased for youth in unique circumstances; partial hospitalization and day treatment were transferred to the Department of Education during this period; intensive day stabilization and then terminated as a standard service.

*Service Intensity*

The intensity of services was examined through analysis of the numbers of hours of service procured. To provide a single indicator across in-home (i.e., home and community) and out-of-home services, one out-of-home service day was assumed to reflect 6.5 service hours. It is important to note that small changes to this conversion value would be expected to have a material effect on the estimated proportion of services that were provided in-home versus out-of-home. Therefore, it is recommended that the actual percent of in-home and out-of-home services should not serve as a basis for decision-making. Nevertheless, the use of a standard conversion value across fiscal years supports interpretation of changes in the relative pattern of services over the course of the study period.

Consistent with the small increase in the total population served, the total number of hours of service purchased statewide increased during the study period from FY 2003 (731,898 hours) to FY2004 (805,225 hours). This increase was accounted for by an increase in the amount of out-of-home services provided (+ 86,964 hours) and a decrease in the amount of in-home services provided (- 13,637 hours). Thus, the four-year pattern of providing a relatively greater proportion of out-of-home services and lower proportion of in-home services continued (see Figure 5). Community residential services and therapeutic group home services were the specific levels of care showing significant increases in the relative proportion of all service hours procured.

**Figure 5: Proportion of Total Hours Procured for In- and Out-of-Home Services**



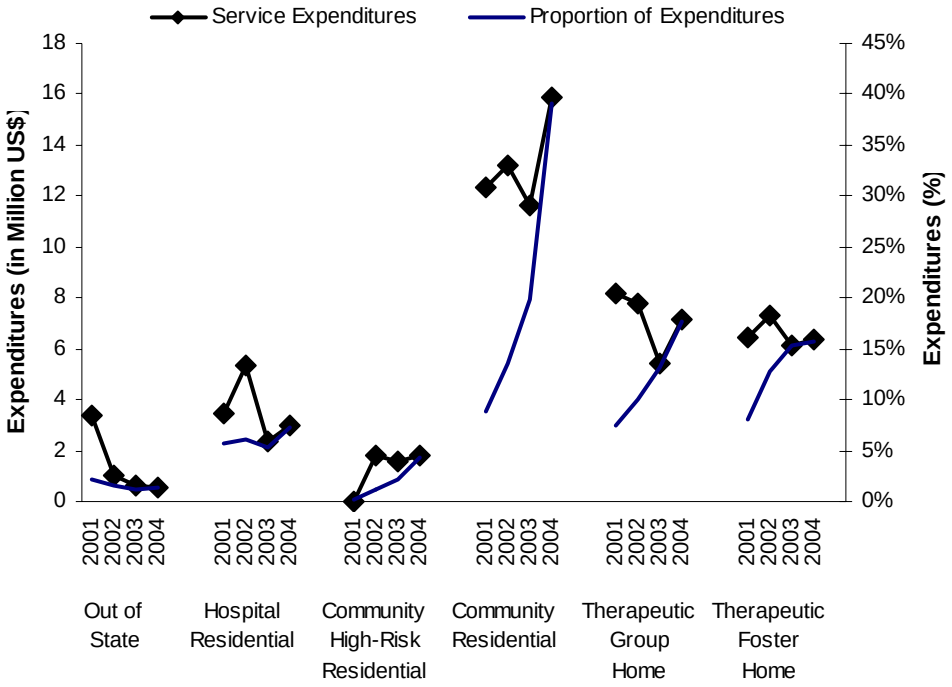

When examined at the individual rather than aggregate level, a similar pattern emerged. For each youth, the total number of service hours procured during the year was determined. Next, the proportion of those services procured in home and community settings was calculated as was the proportion procured in out-of-home settings. The average proportion of all services procured in out-of-home settings significantly increased between FY 2001 and FY 2004 (24%, 33%, 42%, and 49%, respectively). For those youth who received one or more in-home services, the average proportion of all services procured in in-home settings significantly decreased during the four-year period (80%, 78%, 77%, and 75%, respectively). Of those youth who received one or more out-of-home services, the proportion of out-of-home services tended to increase over the study period (88%, 88%, 93%, and 94%, respectively). Thus, CAMHD is procuring more out-of-home and less in-home service hours, and youth are receiving a greater proportion of all of their services in out-of-home settings even if they receive in-home services at some point during the year.

*Service Expenditures*

Service expenditures may serve as a proxy variable for service utilization to the extent that total costs are affected by the number of youth served, the intensity and duration of services provided, and the restrictiveness of the service setting. Therefore, total expenditures and expenditures per level of care were analyzed to describe service patterns. During 2004, CAMHD implemented rate increases in unit costs that would result in increased expenditures over earlier years, even if service utilization were constant. Therefore, expenditures should be expected to function less effectively as a proxy variable in 2004 and must be interpreted in the context of the other direct measures of utilization.

Consistent with the turnaround in population growth and provider rate increases, total service expenditures for FY 2004 showed an increase (40.6 million) over FY 2003 (33.2 million). Total out-of-home service expenditures also showed an increase (34.7 million) over last year (27.7 million; see Table 4). Although out-of-home services had accounted for a substantial increase in proportion of the total service expenditures between FY 2001 and 2003 (57%, 70%, 84%), the proportion of out-of-home service expenditures to total service expenditures seems to have stabilized in FY 2004 and demonstrated only a minor increase (85%).

**Figure 6. Out-of-Home Service Expenditures**




All specific levels of care showed absolute increases in total expenditures except for out-of-state, partial hospitalization, multisystemic, and less intensive services (see Figures 6 & 7). When the relative proportion of total expenditures was examined by level of care, therapeutic foster homes, multisystemic therapy, and intensive in-home services showed decreases. Community residential and therapeutic group home both continued their four-year pattern of accounting for significantly higher proportions of total expenditures. Out-of-state, hospital residential, community high risk, respite home, intensive day stabilization, partial hospitalization, day treatment, flex, respite, and less intensive services all remained fairly stable in relative expenditures.

**Figure 7. In-Home Service Expenditures**

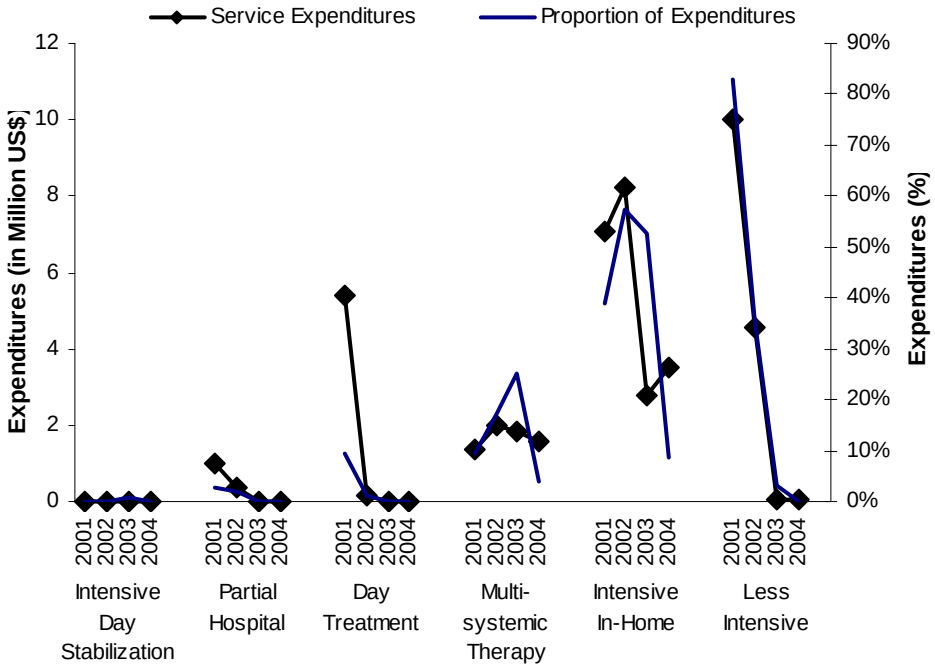


Table 4. Expenditures (US$) per level of care and percent of total expenditures.

| | Fiscal Year | | | | Fiscal Year | | | |
|---|---|---|---|---|---|---|---|---|
| For Youth with Services Procured | 2001 per LOC | 2002 per LOC | 2003 per LOC | 2004 per LOC | 2001 % | 2002 % | 2003 % | 2004 % |
| Out-of-State | 3,379,853 | 1,038,035 | 639,585 | 545,151 | 5.7% | 2.0% | 1.9% | 1.3% |
| Acute Inpatient | 270 | 1,037 | 0 | 0 | 0.0% | 0.0% | 0.0% | 0.0% |
| Hospital Residential | 3,422,558 | 5,309,375 | 2,335,000 | 2,976,741 | 5.7% | 10.1% | 7.0% | 7.3% |
| Community High Risk | 0 | 1,787,940 | 1,577,565 | 1,744,575 | 0.0% | 3.4% | 4.8% | 4.4% |
| Community Residential | 12,372,387 | 13,241,826 | 11,643,307 | 15,857,252 | 20.7% | 25.3% | 35.1% | 39.0% |
| Therapeutic Group Home | 8,192,340 | 7,742,834 | 5,445,838 | 7,150,126 | 13.7% | 14.8% | 16.4% | 17.6% |
| Therapeutic Foster Home | 6,453,979 | 7,297,919 | 6,127,659 | 6,391,266 | 10.8% | 13.9% | 18.5% | 15.7% |
| Respite Home | 0 | 0 | 2,080 | 3,382 | 0.0% | 0.0% | 0.01% | 0.01% |
| Intensive Day Stabilization | 0 | 0 | 23,000 | 0 | 0.0% | 0.0% | 0.1% | 0.1% |
| Partial Hospitalization | 984,750 | 368,000 | 5,026 | 2,046 | 1.6% | 0.7% | 0.02% | 0.01% |
| Day Treatment | 5,394,290 | 179,973 | 0 | 0 | 9.0% | 0.3% | 0.0% | 0.0% |
| Multisystemic Therapy | 1,382,780 | 1,987,538 | 1,832,154 | 1,571,847 | 2.3% | 3.8% | 5.5% | 3.9% |
| Intensive In-Home | 7,053,293 | 8,204,245 | 2,787,366 | 3,533,494 | 11.8% | 15.6% | 8.4% | 8.7% |
| Flex | 643,294 | 435,921 | 603,220 | 624,511 | 1.1% | 0.8% | 1.8% | 1.5% |
| Respite | 388,309 | 253,355 | 60,478 | 118,420 | 0.7% | 0.5% | 0.2% | 0.3% |
| Less Intensive | 10,032,916 | 4,580,675 | 68,959 | 66,148 | 16.8% | 8.7% | 0.2% | 0.2% |
| Out-of-Home Services | 33,821,386 | 36,418,966 | 27,768,953 | 34,695,112 | 56.7% | 69.5% | 83.8% | 85.4% |

Note: Acute inpatient was not a standard CAMHD service, but was purchased for youth in unique circumstances; partial hospitalization and day treatment were transferred to the Department of Education during this period.

*Service Stability*

Stability of services was investigated by examining the number of provider agencies changes and the number of care coordinator changes that youth experienced per year. Because the bulk of provider agency changes analyzed in prior years were flex provider changes, mostly travel provider changes (e.g., airlines), this year's analysis excluded flex providers. This provides a better description of actual mental health service stability, but precludes comparing current results to previous years. During fiscal year 2004, CAMHD youth experienced provider changes on 142 occasions (an average of 12 per month) and care coordinator changes on 1,277 occasions (an average of 106 per month). In other words, approximately one out of every seventeen registered youth experienced a new provider during the year and one out of every two registered youth received a new care coordinator during the year. When only youth with procured services were examined, approximately one out of every nine served youth experienced a new provider during the year and one out of every two served youth received a new care coordinator during the year. At first glance, it would seem that procured services are relatively more stable than care coordination services. However, this is not a fair comparison, because the stability of the actual personnel with whom the youth work at provider agencies was not examined and youth receiving services from a single agency may experience therapist changes that are not reported here.

Nevertheless, the results of this analysis suggest that it may be the norm for youth to periodically experience a change in their service environment, particularly their primary care coordination relationship. Although it is unclear how this relates to prior years, increased vacancy rates in care coordinator positions during FY 2004 might account for many of these care coordinator changes. Whether this turnover is and exception or the rule will need to be determined through analysis of future years. At present, these results generally suggest that in a given year, youth have less than a 50-50 chance of receiving services from an unchanging team of mental health professionals.

Service Efficiency

Prior analyses found that the total number of youth with service procured, the total number of hours provided, and the total service expenditures decreased during the previous three-year study period. However, this past year saw a reversal of these trends. From FY 2003 to FY 2004, the total number of youth served, the total number of hours provided, and the total service expenditures all increased. Therefore, further analysis of the relative rates of increase was performed to evaluate whether the increase in outputs (e.g., number of youth served, service hours provided) was associated with a comparable increase in inputs (i.e., dollars expended). The definition of which variables constitute inputs and outputs implicitly depends on one's perspective, but consistent with prior years, the present analysis viewed the number of youth accessing services as the primary output, the number of hours provided as a mediating factor, and expenditures as the primary input. Accordingly, the efficiency analysis focused on whether the intensity of services (i.e., hours per youth), expenditures per youth, and expenditures per unit of service intensity changed during the study years.

*Service Intensity*

As previously mentioned, both the total number of hours provided and the total number of youth served increased. Analysis of the average number of hours purchased per youth showed a 10% increase (+ 63 hours) from FY 2003 to FY 2004. Therefore, the total number of hours provided increased at a greater rate than did the total number of youth served. Thus, more youth are receiving more hours of service.

This increase in service hours per youth was most pronounced in out-of-home settings, where all individual levels of care except hospital residential showed increase hours of service per youth (see Table 5). Because hours of service per youth during the year was an indicator of length of stay in out-of-home settings, these findings suggested that youth are tending to stay longer at the specific level of care. This represents a reversal of the trend noted in previous years toward shorter lengths of stay at specific out-of-home levels of care. In-home patterns were less consistent with multisystemic therapy showing decreased hours per youth and intensive in-home services showing increased hours per youth.

*Service Expenditures*

To examine efficiency of expenditures, both the cost per hour of service procured and the total cost per youth were examined. As previously noted, CAMHD issued unit rate increases for service providers during FY 2004. Accordingly, the cost per hour of service procured increased as expected. Therefore, both the increased number of hours per youth and the average cost per hour of service resulted in an increase in the average cost per youth. Specifically, the average cost per youth with services procured increased from $25,839 in FY 2003 to $30,378 FY 2004 to more closely approximate expenditures per youth of $29,438 in FY 2002.

Table 5. Service hours provided per youth per year and average percent of total hours received at each level of care.

| | Fiscal Year | | | |
|---|---|---|---|---|
| For Youth with Services Procured | 2001 Hours | 2002 Hours | 2003 Hours | 2004 Hours |
| Out-of-State | 1,558 | 1,294 | 1,133 | 1,522 |
| Acute Inpatient | - | - | - | - |
| Hospital Residential | 530 | 528 | 393 | 390 |
| Community High Risk | 1,648 | 1,835 | 1,344 | 1,793 |
| Community Residential | 930 | 929 | 794 | 826 |
| Therapeutic Group Home | 864 | 897 | 727 | 877 |
| Therapeutic Foster Home | 1,209 | 1,233 | 1,182 | 1,204 |
| Respite Home | 0 | 0 | 42 | 34 |
| Intensive Day Stabilization | 0 | 0 | 2 | 0 |
| Partial Hospitalization | 14 | 12 | 0 | 0 |
| Day Treatment | 14 | 12 | 0 | 0 |
| Multisystemic Therapy | 153 | 136 | 141 | 134 |
| Intensive In-Home | 97 | 114 | 77 | 83 |
| Flex | - | - | - | - |
| Respite | - | - | - | - |
| Less Intensive | 115 | 277 | 10 | 10 |
| Out-of-Home Services | 1,168 | 1,245 | 1,158 | 1,157 |
| In-Home Services | 159 | 207 | 102 | 95 |

Examination of cost per hour for specific levels of care highlights increases in community high-risk and multisystemic therapy (see Table 6). These two services both have cost reimbursement structures that differ from unit costs. Therefore, cost per hour is closely related to the rate of utilization of these services. As noted above, both of these services showed absolute decreases in the number of youth served which translates to increases in cost per youth due to the relatively high fixed costs for these services. Because the cost per youth is also affected by the hours per youth for these services the increase hours per youth for community high-risk compounded the increased cost per hour, whereas the decrease in hours per youth for multisystemic therapy offset the increased cost per hour and was associated with a lower cost per youth in this analysis.

Altogether, these results suggest that CAMHD has expanded services but has not generated any new service efficiencies during FY 2004. More youth are served for more hours at a greater cost per hour and a higher average cost per youth. In other words, the higher service output was associated with higher system input and the inputs increased at a higher rate than the outputs. The efficiency ratios were associated with both increased hours per youth and increased costs per hour.

When interpreting the cost per service unit, it is important to keep in mind that the scaling of these estimates is arbitrary (i.e., they do not represent contracted costs per billable hour) so the actual values should not be interpreted as such. Instead, these estimates were constructed to compare relative efficiencies across study years. For example, the high cost for less intensive services is likely due to the fact that psychosexual assessments, which are performed by high qualified and specialized personnel, accounted for almost all of the less intensive services purchased during FY 2003 and FY 2004, whereas many other less specialized outpatient services were also purchased in prior years. Nevertheless, as previously noted, changes to contracted unit costs would affect these numbers accordingly.

Table 6. Average expenditures (US$) per youth receiving service and per service hours by level of care.

| | Fiscal Year | | | | Fiscal Year | | | |
|---|---|---|---|---|---|---|---|---|
| For Youth with Services Procured | 2001 $/Youth | 2002 $/Youth | 2003 $/Youth | 2004 $/Youth | 2001 $/Hour | 2002 $/Hour | 2003 $/Hour | 2004 $/Hour |
| Out-of-State | 58,273 | 51,902 | 53,299 | 60,572 | 36 | 30 | 35 | 40 |
| Acute Inpatient | 270 | 1,037 | - | - | - | - | - | - |
| Hospital Residential | 38,028 | 50,088 | 37,661 | 38,163 | 42 | 92 | 86 | 98 |
| Community High Risk | - | 148,995 | 98,598 | 136,506 | - | 46 | 43 | 76 |
| Community Residential | 51,767 | 54,718 | 45,482 | 49,094 | 56 | 59 | 57 | 59 |
| Therapeutic Group Home | 40,962 | 43,256 | 32,034 | 41,093 | 47 | 49 | 44 | 47 |
| Therapeutic Foster Home | 30,300 | 32,008 | 31,105 | 32,279 | 26 | 26 | 26 | 27 |
| Respite Home | - | - | 520 | 423 | - | - | 12 | 12 |
| Intensive Day Stabilization | - | - | 2,091 | - | - | - | 322 | - |
| Partial Hospitalization | 13,870 | 11,500 | 5,026 | 2,046 | - | - | - | - |
| Day Treatment | 21,664 | 9,472 | - | - | - | - | - | - |
| Multisystemic Therapy | 6,523 | 6,974 | 5,725 | 5,439 | 38 | 59 | 46 | 75 |
| Intensive In-Home | 6,763 | 7,965 | 4,111 | 5,070 | 70 | 70 | 54 | 61 |
| Flex | 1,302 | 1,260 | 2,147 | 1,725 | - | - | - | - |
| Respite | 2,157 | 1,797 | 1,234 | 1,941 | - | - | - | - |
| Less Intensive | 4,513 | 7,236 | 1,642 | 2,281 | 41 | 31 | 130 | 130 |

Service Summary

Services patterns during fiscal year 2004 reversed many of the trends evident in prior years. CAMHD increased its total system output by serving a greater number of youth at a higher intensity. These increases in output were associated with an increase in input of total service expenditures and a somewhat lower fiscal efficiency (i.e., increased cost per hour and cost per youth).

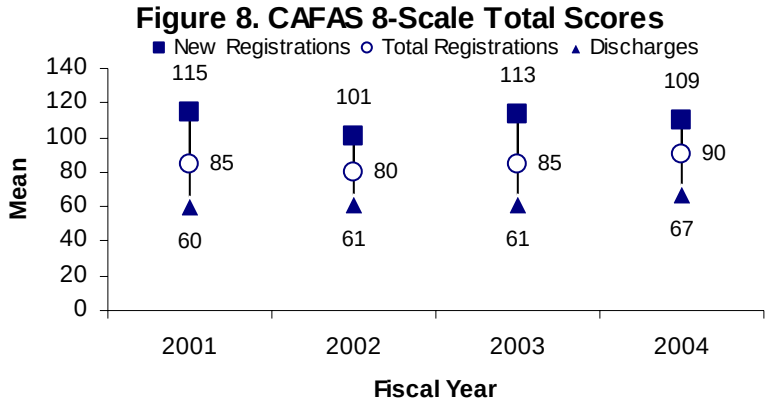
Various indicators suggest that use of out-of-home services continues to increase. Specific increases were evident at the moderate level of restrictiveness, most notably in community residential services and less so in therapeutic group homes. Utilization of the most restrictive out-of-home services (i.e., out-of-state and hospital residential) was relatively stable, as was utilization of therapeutic foster homes. Multisystemic therapy and community high-risk residential services were relatively new services that had consistently grown in prior years, but both experienced declines in utilization and efficiency during FY 2004.

Examination of service stability revealed that approximately one in two youth experienced a care coordinator change and one in nine experienced a provider agency change. These findings suggest that youth and families are likely to experience a changing constellation of professionals with whom they work. Thus, it appears that the goal of providing youth with at least one stable care coordination relationship as part of the system of care remains to be achieved for many youth.

Child Status Characteristics

To examine child functioning and level of service needs, the eight-scale total score from the Child and Adolescent Functional Assessment Scale (CAFAS) and the level of care score from the Child and Adolescent Level of Care Utilization System (CALOCUS) were used as primary outcome measurements. CAMHD has also developed procedures for collecting the Achenbach System of Empirically Based Assessment (ASEBA) parent (CBCL), teacher (TRF), and youth (YSR) report forms, but due to large amounts of missing data during the study period, results from the ASEBA are not reported.

The first analysis examined the child status scores for the annual population. For FY 2004, three scores were calculated (a) the average score within three-months of admission for the group of youth admitted during the year, (b) the average score across all assessments conducted during the year for all youth with one or more assessments, and (c) the average score within three-months prior of discharge for the group of youth discharged during the year. These scores describe the average status for youth entering, active, and leaving the CAMHD system during the year, but they do not describe changes within an individual over time. Over the three years of the study period, the number of youth receiving assessments had consistently increased but has somewhat stabilized in FY 2004. Accordingly, the sampling errors have decreased, as have the 95% confidence intervals.

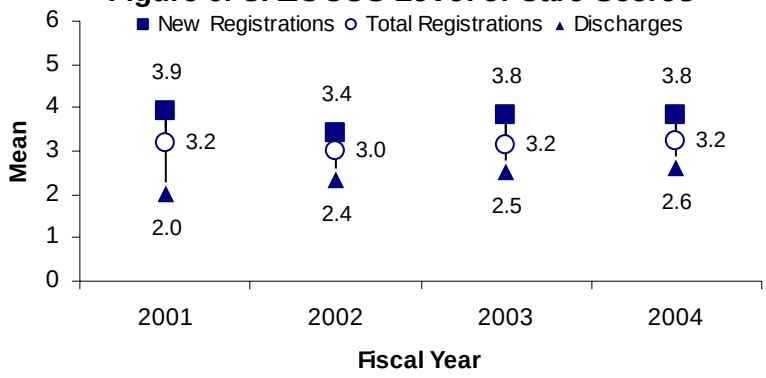



The average CAFAS scores maintained a stable pattern across FY 2003 and FY 2004 (see Figure 8). For this period, intake scores were higher than average scores, which were in turn higher than discharge scores. The 95% confidence range of average CAFAS scores for youth newly admitted to the system was 109 – 117 in FY 2003 (N = 334) and 106 - 113 in FY 2004 (N = 491). The 95% confidence range for average functioning of all youth was 83 – 87 in FY 2003 (N = 1,317) and 88 – 92 in FY 2004 (N = 1,454). For discharged youth the confidence intervals were 57 – 66 in FY 2003 (N = 323) and 62-71 in FY 2004 (N = 293) respectively. Thus, there was a slight variation across years in

terms of the specific averages, but these variations were within the margin of error. As a guideline for interpreting the CAFAS, scores of 50 – 90 may indicate a need for services beyond outpatient care and scores of 100 – 130 indicate the need for intensive services with multiple supports. Further, a score of 80 on the CAFAS represents the point of functional impairment that qualifies a youth as severely emotionally or behaviorally disturbed (SEBD).

Analysis of average CALOCUS scores generally replicated the CAFAS findings and indicated a stable pattern across study years (see Figure 9). Over the past year, child needs at intake exceeded the needs of the average youth in the system, which in turn exceeded the needs of youth at discharge. The 95% confidence range of average CALOCUS scores for youth newly admitted to the system was 3.7 – 4.0 in FY 2003 (N = 301) and 3.7 – 3.9 in FY 2004 (N = 415). The 95% confidence range for average functioning of all youth was 3.1 – 3.2 in FY 2003 (N = 1,200) and 3.2 – 3.3 in FY 2004 (N = 1,319). For discharged youth the confidence intervals was 2.4 – 2.7 in FY 2003 (N = 294) and 2.4 – 2.8 in FY 2004 (N = 266). As a guideline for interpreting the CALOCUS, a score of 2 indicates a need for outpatient services, a score of 3 indicates a need for intensive services, and a score of 4 indicates a need for multiple intensive integrated services.

**Figure 9. CALOCUS Level of Care Scores**

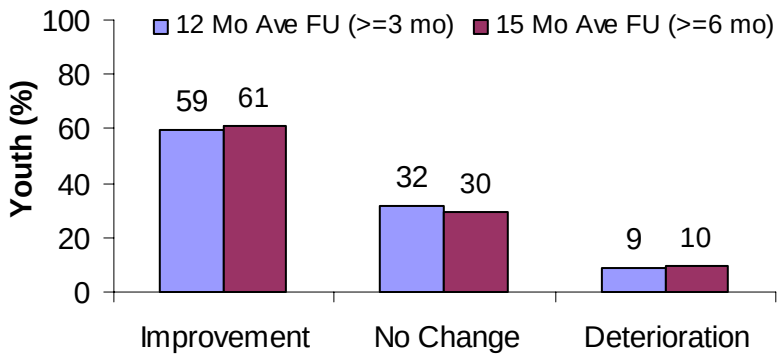



Taken together, the CAFAS and CALOCUS results show that the average youth entering the CAMHD system was in need of multiple integrated intensive services and supports. On average, all youth in the system were in need of intensive services and case management beyond basic outpatient care. Finally, youth discharged from the system remained in need of outpatient services, but did not generally require more intensive programming. There was a tendency for youth to be discharged at a slightly lower level of functioning and higher level of need during FY 2004, but this effect was not statistically significant. The findings based on these standardized measures of child status, indicate that CAMHD is serving the population of youth in need of intensive mental health services and that the average youth discharged from CAMHD was not in need of intensive services.

To the extent that population-based estimates of intake, average, and discharged scores describe a decreasing pattern that remains stable over time, it is likely that the functioning of individual youth was improving as they progressed from intake to discharge. Nevertheless, population-based analyses do not directly describe changes within individuals across time. To examine intra-individual change, baseline and follow-up scores were identified for individual youth, and an indicator of reliable change using a 95% confidence level was calculated (Jacobson & Truax, 1991). For each youth, the registration episode of interest was defined as the most recent period of registration with a six month or longer length of service. The baseline assessment was defined as the highest score received within three months of admission. The follow-up measure was defined as the most recent assessment that was completed three or more months after the baseline assessment (or six or more months after baseline).

When a three-month minimum follow-up period was required, the average duration between baseline and follow-up assessment was 12 months for the CAFAS (n = 843) and CALOCUS (n = 681). When a six-month minimum follow-up period was required, the average duration between baseline and follow-up assessment was 15 months for both CAFAS (n = 607) and CALOCUS (n = 499). Thus, increased assessment completion rates resulted

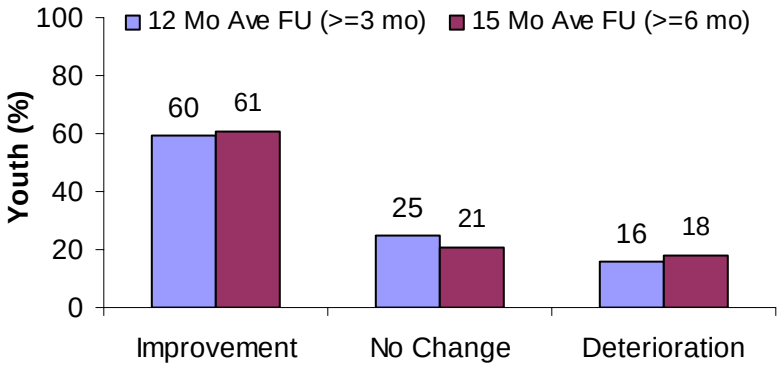
**Figure 10. Reliable Change on CAFAS 8-Scale Total**



in much larger sample sizes than were available in prior years and the average follow-up periods were much longer. Results were quite similar whether the three- or six-month minimum follow-up periods were examined. When CAFAS scores were analyzed, approximately six out of ten youth showed reliable improvement and one out of ten youth showed reliable deterioration (see Figure 10). Similar results were obtained in the CALOCUS analysis with six out of ten showing reliable improvement, but a slightly larger proportion (one out of six) showed reliable deterioration (see Figure 11). When the effect sizes were examined, the average change on both the CAFAS and the CALOCUS ranged across follow-up period lengths from + 0.9 SD to + 1.1 SD over the baseline measure.

Results from the FY 2003 analysis yielded a wider range of estimates from 48% to 64% reliable improvement, which was consistent with the smaller sample size. The larger sample sizes yielded more consistent estimates across measures and across follow-up period length. Taken together the results from the FY 2004 analysis suggest that the majority of youth show reliable improvements in their level of functioning and lower service needs over the course of their services from CAMHD. If the larger sample sizes continue in future years, year-to-year comparisons of individual change will be feasible.

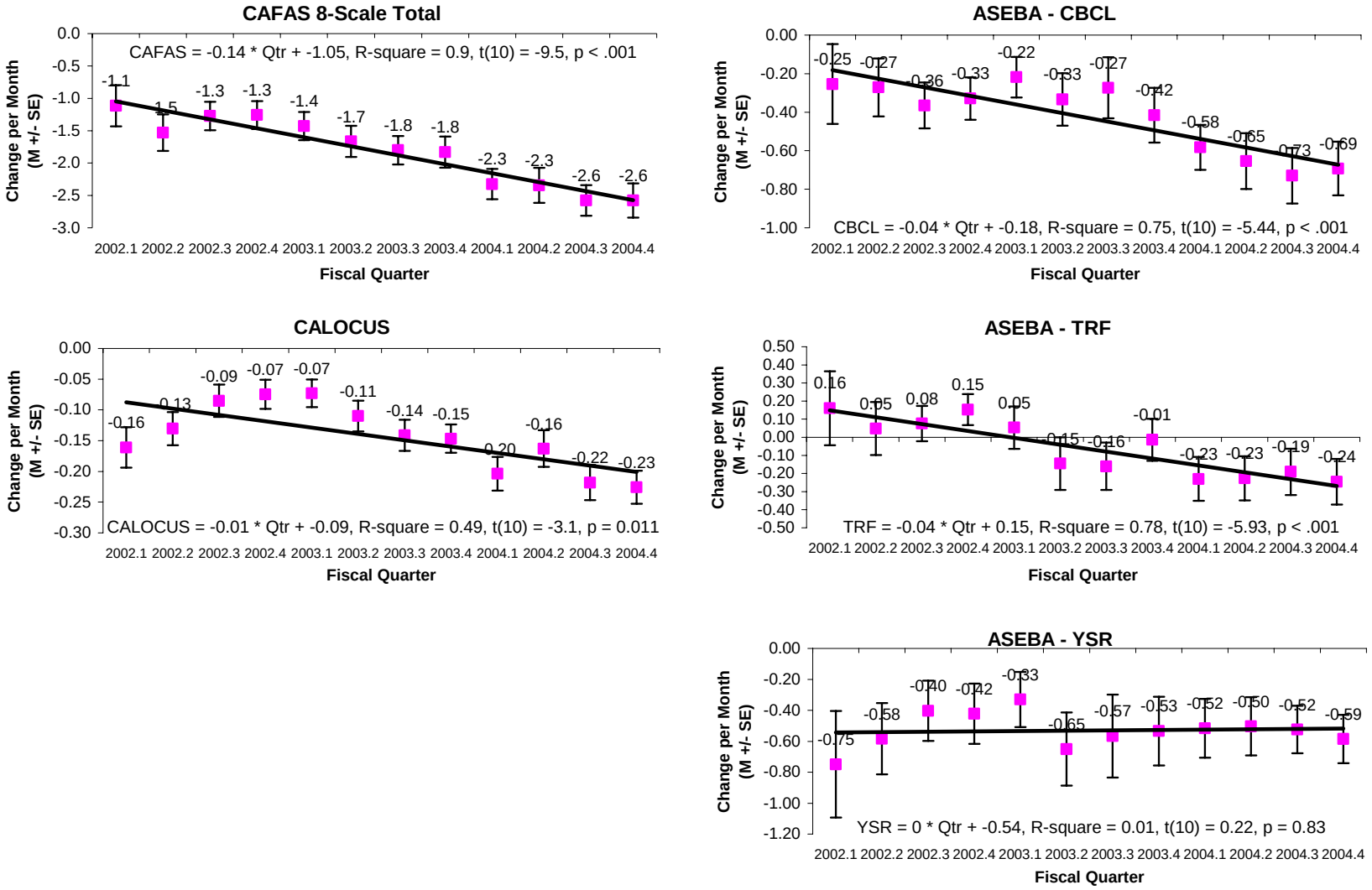
**Figure 11. Reliable Change on CALOCUS Level of Care**




In a continued effort to evaluate changes in child status associated with system developments, Daleiden (2004) conduct a special study examining whether the rate of child improvement or the proportion of youth demonstrating improvement in child status had increased between fiscal years 2002 and 2004. To evaluate change, Daleiden calculated the slope of the best line for each youth with at least two valid assessments between their current episode admission and the end of each fiscal quarter during the reporting period. In other words, the average monthly rate of change was calculated for each youth during their active service episode. These analyses were conducted separately for the CAFAS, CALOCUS, and ASEBA measures. These analyses were similar to the reliable change analysis in spirit (i.e., it is an indication of intra-individual change), but it allowed for larger sample sizes because neither a baseline assessment nor a follow-up period of specified length were required. These analyses also use information from all available assessments conducted during the active service episode whereas the reliable change analysis only uses data from two assessments (i.e., baseline and follow-up). However, these analyses do not adjust for measurement error, whereas reliable change analyses explicitly incorporate measurement error.

Complete description of results and analysis are provided in Daleiden (2004), but in summary, results indicated that youth served in more periods were improving at a significantly greater rate than youth served during earlier fiscal years. This increase was evident across parent, teacher, and clinician report measures of functioning, service need, and symptomatology (see Figure 12). Improvement rates remained stable throughout the study period on the youth reported measure of symptomatology (i.e., ASEBA YSR). Although this study did not examine causal mechanisms of change, these findings are consistent with the conclusion that efforts to implement evidence-based services, develop care coordination practice, increase information feedback to stakeholders, adopt statewide performance measures, restructure quality improvement and practice-focused performance management processes, and improve utilization management are meeting with success.

**Figure 12: Average Monthly Within Client Slopes (I.e., Change per Month) During Service Episode**
**For the Period of July, 2001 to June 30, 2004**
**as of June 30, 2004**



Child Status Summary

Both population-based and individual analyses found that youth entering CAMHD services show improved functioning. Youth tend to enter CAMHD with impairments that call for multiple intensive and integrated mental health services and the majority of youth show reliable improvements in functioning upon receipt of these services. Youth tend to leave the CAMHD system with functioning appropriate for management in outpatient services. The rate with which youth are showing these improvements has increased over the past few years, and when measurement error is considered approximately six out of ten youth show reliable improvements over minimum follow-up periods of three to six months. These improvements are quite promising and generally suggest that system developments at CAMHD appear to be on a good course. Nevertheless, comparisons of CAMHD improvement rates and effect sizes to the best rates reported in the treatment outcome research literature indicate that CAMHD may still make addition improvements in child outcomes (c.f., CAMHD, 2004; Daleiden, 2004). One of CAMHD's major strategies for supporting such continued improvement is the implementation of evidence-based services. Evaluation of evidence-based service activities is the focus of the remainder of this report.

## Special Focus Results: Evidence-Based Services

Introduction

For fiscal year 2004, evidence-based services (EBS) were selected as a focused area for further evaluation and analysis. As previously noted, CAMHD implemented two major initiatives related to evidence-based services during fiscal year 2004. First, CAMHD revised the procedures by which its provider network reports treatment practices and child progress on a monthly basis. Specifically, the new Monthly Treatment and Progress Summary (MTPS; CAMHD 2003) was implemented statewide in May 2003 and replaced an unstructured monthly progress report. The second major EBS-related initiative involved using the practice element codes developed for the MTPS to provide a detailed analysis of the content of the interventions that the EBS committee determined to be empirically supported. Specifically, in addition to maintaining its ongoing literature review of psychosocial interventions for pediatric mental health problems, the CAMHD EBS committee coded all of the empirically supported treatment protocols with respect to whether or not these protocols contained each of the practice elements. The 2004 biennial report of the EBS committee provides more details about this procedure and its results.

The current evaluation examined a series of questions related to these two initiatives and the synergies that can be gained by integrating the results of these activities. These questions may be generally grouped into questions of measurement, questions of relevance and coverage, and questions of implementation. Although it was not possible to answer all questions under each of these categories, the current evaluation attempted to address the following types of questions:

Measurement

1. Does the identification of child mental health problems (e.g., diagnoses) occur in a reliable fashion?
2. Are diagnoses and treatment targets related in a meaningful fashion?
3. Did the EBS committee reliably code the practice elements?
4. What is the stability of practice elements across time?

Relevance and Coverage

1. Has the EBS committee identified empirically supported treatments for the typical problems experienced by youth seeking services from CAMHD?
2. For youth with multiple problems, are empirically supported treatments available for all of their challenges?

Implementation

1. For the most common problems faced by CAMHD's youth, how commonly are the therapeutic practices identified as empirically supported by the EBS committee used in actual care?
2. What other practice are typically used in actual care?

Measurement

*Problem Areas*

To date, the CAMHD EBS committee's literature review and recommendations have been largely, but not exclusively, organized around problem areas as defined in the research literature, by mental health diagnosis. This diagnosis-based framework is consistent with the conventional model of mental health services that begins with an assessment and diagnosis of key problems, followed by case conceptualization and selection of intervention targets, then the implementation of therapeutic practices to alleviate defined problems and improve functioning. Accordingly, examination of the consistency of diagnostic assessment is a reasonable place to start the current evaluation on measurement issues related to the systemic coordination of services. Given that diagnoses may play an important role in "prescribing" empirically supported therapies, the quality of the diagnostic decision may have important "downstream" effects. However, to the extent that empirically supported treatments for different problem areas share common practice elements, the effects of inconsistent diagnoses may be mitigated as different diagnoses ultimately may lead to common treatment practices.

To examine the consistency of diagnoses, the DSM-IV diagnostic codes recorded in CAMHMIS were classified with respect to which of the EBS problem areas they represented. Next, kappa coefficients were calculated for each of these categories to determine the correspondence between diagnostic assessments for youth who received diagnoses on at least two occasions. These analyses were conducted for two samples of youth. First, youth registered for services with CAMHD during fiscal year 2004 and who had received at least two diagnoses within 90 days whether or not both diagnoses occurred during fiscal year 2004 (N = 67). The second sample was all youth registered for services with CAMHD during fiscal year 2004 and who had received at least two diagnoses within one year (N = 267). Results from the second sample were similar to the first but, as expected, tended to be slightly lower due to the longer time between assessments. Therefore, only the results of the 90-day sample are presented here for all problem areas except psychotic disorders or schizophrenia. The one-year sample was presented for the psychotic disorders or schizophrenia problem area due to an insufficient sample size for this problem when the shorter duration was examined.

The results presented in Table 7 describe the consistency in the presence of each diagnostic category regardless of whether the diagnosis was a primary or additional diagnosis. Results indicated that diagnostic consistency tended to be fair to poor for the four most common diagnostic problems faced by CAMHD youth (i.e., attentional, disruptive, mood, and anxiety). Consistency was good for some of the less prevalent problems faced by CAMHD youth (i.e., psychotic and substance related disorders). Generally, a similar pattern of findings was evident when only primary diagnoses were examined for the most common problems with the exceptions that consistency improved to good for attention and hyperactivity (0.71), improved to fair for bipolar (0.55), but deteriorated to poor for anxiety and avoidant (0.30).

Taken together, these results indicated that the diagnostic consistency of assessments within the

Table 7. Consistency in EBS diagnostic category assignments between two assessments within 90 days.

| Problem Area | $\kappa$ | Interpretation[a] |
|---|---|---|
| Anxiety and Avoidant | .54 | Fair |
| Attention and Hyperactivity | .49 | Fair |
| Bipolar Disorder | .31 | Poor |
| Depressed and Withdrawn | .42 | Fair |
| Disruptive Behavior | .32 | Poor |
| Psychotic/Schizophrenic[b] | .61 | Good |
| Substance-Related | .65 | Good |

Note: [a] interpretation guidelines excellent ($\geq$ .75), good (.60 - .74), fair (.40 - .59), poor (< .40) from Mannuzza et al. (1989); [b] second assessment within one-year.

CAMHD system tends to be mediocre. However, several issues are important to keep in mind when interpreting these results. First, these analyses were based on convenience samples of youth with multiple assessments recorded. To the extent that youth receiving multiple assessments within constrained time periods differ systematically from those receiving less frequent assessments, these results will be biased. For example, if second assessments are more systematically sought for difficult cases, then these results would tend to represent diagnostic consistency within difficult to diagnose cases and therefore, may underestimate the true diagnostic reliability within the system. Second, these findings are consistent with other studies reporting only fair reliability for clinical diagnoses in routine care settings (e.g., McConville & Walker, 2000). Thus, even though CAMHD's performance was not good, it may not be atypical. The third issue is related to potential consequences of diagnostic inconsistencies. Although diagnostic assessments may guide treatment prescriptions, as previously noted, to the extent that empirically supported treatments for different problems or diagnoses share common practice elements, superficial differences in treatment prescriptions may not necessarily represent actual differences in practices prescribed. Nevertheless, these findings are consistent with the notions that routine diagnostic practices at CAMHD could be improved (e.g., by requiring structured diagnostic assessments) and that such improvement would minimize potential "downstream" effects associated with prescribing evidence-based practices based on diagnoses.

Diagnosis represents the state-of-the-art in mental health problem definition and clarification, yet, does not necessarily encapsulate intervention targets. While diagnoses may summarize important commonalities in etiology and prognosis of mental health problems, they may not accurately characterize the actual reasons that consumers seek services or the desired improvements that consumers would like to experience as the result of treatment. Alternatively, treatment targets are identified during service planning, are negotiated with consumers and professionals, and are related to, but distinct from diagnoses. Accordingly, the next set of analyses examined the month-to-month consistency in treatment targets as reported by providers and the relationship between treatment targets and diagnoses.

Specifically, the one-month stability of specific targets on the Monthly Treatment and Progress Summary (MTPS) was examined. This analysis was not a true reliability estimate in that the month-to-month variability is expected to include both measurement error and true changes to the treatment program during the period. To prepare for the stability examination, all of the open-ended responses to the other target items were reviewed and reclassification was attempted. In response to this effort, the 15 new categories of adaptive behavior/living skills, adjustment to change, adult intercoordination, caregiver self-management/coping, compulsive behavior, goal setting, housing/living situation, information gathering, occupational functioning/stress, parenting skills, pregnancy education/adjustment, safe environment, sexual orientation, treatment engagement, and treatment planning/framing were included in subsequent analyses.

Findings indicated that the average kappa coefficient for the one-month stability estimates was in the good range (.66) across all of the predefined targets. The write-in targets were somewhat less stable with the average estimate in the fair range (.45). Table 8 illustrates that the majority of targets displayed average stabilities in at least the good range. As expected due to a longer time duration, examination of three-month stabilities yielded average kappas that tended to be approximately one range lower (e.g., kappas dropped by approximately .15 points; .52 for predefined targets) and to approximate the reliabilities of the EBS diagnostic categories.

Taken together, these findings indicate that there is a moderate degree of short-term stability to provider reports of treatment targets on the MTPS and that these targets are adjusted to a certain degree over the course of treatment. The fact that these estimates are greater than zero suggests endorsement patterns are not random and the fact that they are less than one indicates that the forms are not filled out the same every month. Thus, these results provide preliminary support for the MTPS target assessment.

Proceeding with the evaluation, the next set of analyses examined whether target endorsement was related to the child's primary diagnosis. Although diagnoses and targets are different constructs, they ought to bear a reasonable relationship. In other words, target selection should not be randomly distributed across diagnoses. For example, one might reasonably expect that youth with a disorder of anxiety or avoidance would have targets such as anxiety, shyness, traumatic stress, etc., endorsed more frequently than would youth who do not have an anxiety or avoidant disorder. Again, such relationships are not expected to be particularly strong but they should be notable.

Table 8. Summary of the one-month stability estimates for targets reported on the Monthly Treatment and Progress Summary.

| Excellent ($\kappa \geq .75$) | Good ($\kappa = .60 - .74$) | Fair ($\kappa = .40 - .59$) | Poor ($\kappa < .40$) |
|---|---|---|---|
| Adaptive Behavior/Living Skills | Academic Achievement | Adult Intercoordination | Adjustment to Change |
| Compulsive Behavior | Activity Involvement | Avoidance | Fitness/Exercise |
| Enuresis/Encopresis | Aggression | Caregiver Self-Management/Coping | Goal Setting |
| Fire Setting | Anger | Contentment/Enjoyment/Happiness | Information Gathering |
| Housing/Living Situation | Anxiety | Mania | Occupational Functioning/Stress |
| Hyperactivity | Assertiveness | Personal Hygiene | Pregnancy Education/Adjustment |
| Psychosis | Attention Problems | Runaway | Sexual Orientation |
| Sexual Variation/Misconduct | Cognitive-Intellectual Functioning | Safe Environment | Treatment Engagement |
| Shyness | Community Involvement | School Involvement | Treatment Planning/Framing |
| Speech and Language | Depressed Mood | | |
| Substance Use | Eating/Feeding Problems | | |
| | Empathy | | |
| | Gender Identity Problems | | |
| | Grief | | |
| | Health Management | | |
| | Learning Disorder/ Underachievement | | |
| | Medical Regimen Adherence | | |
| | Oppositional/Non-Compliant Behavior | | |
| | Parenting Skills | | |
| | Peer Involvement | | |
| | Peer/Sibling Conflict | | |
| | Positive Family Functioning | | |
| | Positive Peer Interaction | | |
| | Positive Thinking/Attitude | | |
| | School Attendance/Truancy | | |
| | Self-Esteem | | |
| | Self-Injurious Behavior | | |
| | Self-Management/Self-Control | | Insufficient Data to Analyze |
| | Social Skills | | |
| | Suicidality | | Pain Management |
| | Traumatic Stress | | Phobia/Fears |
| | Willful Misconduct/Delinquency | | Sleep Disturbance/Sleep Hygiene |

Table 9. Summary of targets reported on the Monthly Treatment and Progress Summary that were endorsed at significantly different rates for each primary EBS diagnostic group using a 99% confidence level sorted by effect size.

| Anxiety and Avoidant | Attention and Hyperactivity | Bipolar Disorder | Depressed and Withdrawn | Disruptive Behavior | Psychotic/ Schizophrenic | Substance-Related |
|---|---|---|---|---|---|---|
| Personal Hygiene | Hyperactivity | Mania | Depressed Mood | Willful Misconduct/ Delinquency | Psychosis | Substance Use |
| Anxiety | Attention Problems | Self-Management/ Self-Control | Positive Family Functioning | Goal Setting | Phobia/Fear[a] | Community Involvement |
| Traumatic Stress | Depressed Mood (-) | Aggression | Self-Management/ Self-Control (-) | Oppositional/ Non-Compliant Behavior | | School Involvement |
| Shyness | Positive Thinking/ Attitude (-) | Hyperactivity | Suicidality | Occupational Functioning/ Stress | | Positive Thinking/ Attitude (-) |
| Self-Esteem | Health Management (-) | Health Management | School Attendance/ Truancy | Substance Use | | Runaway |
| | Grief (-) | Self-Injurious Behavior | Attention Problems (-) | Medical Regimen Adherence (-) | | Avoidance |
| | Substance Use (-) | Empathy | Hyperactivity (-) | Treatment Planning/ Framing (-) | | Grief |
| | Peer Involvement (-) | Medical Regimen Adherence | | Anger | | |
| | Learning Disorder/ Underachievement | | | Aggression | | |
| | Psychosis (-) | | | Hyperactivity (-) | | |
| | | | | Psychosis (-) | | |

Note: (-) indicates target was endorsed less frequently in the diagnostic group; [a] Phobia/fear was only endorsed as a target for two youth, one of whom had a psychotic disorder diagnosis.

The comparison of treatment targets across groups with and without a related primary diagnosis can be conceptualized as a test of the convergent and discriminant validity of the MTPS. A series of Multivariate Analysis of Variance (MANOVAs) were conducted using targets as a dependent variables and primary diagnosis as the independent variable. Due to the large number of statistical tests conducted, a 99% confidence level ($p < .01$) was used to mitigate against elevated type I errors. The results of these analyses are summarized in Table 9. These findings were generally supportive of the convergent validity of the MTPS target assessment in that many of the primary symptoms and common comorbid conditions were associated with relevant primary diagnostic categories. These analyses also provided some support for the discriminant validity of the MTPS in that unrelated targets were not significantly associated with or were less prevalent in irrelevant primary diagnostic groups. Some targets were common across primary diagnostic groups, but such limited overlap is not surprising given overlapping symptomatology between disorders and the high rates of comorbid problems in the CAMHD population.

*Treatment Practices*

So far, analyses have established that the identification of problem areas, whether through diagnosis or treatment targets proceeds with a modest degree of consistency and that these strategies are meaningfully related to one another. Once meaningful problem areas are identified, some logical next questions include: Can we reliably identify how the problems should be treated? Have we identified how the problems should be treated? And, how are the problems actually treated? As an initial step in addressing these questions, it is necessary to establish that treatment practices can be reliably identified from the treatment literature and that service providers consistently report the practices that they use. Accordingly, the next set of analyses examined the degree to which multiple judges reviewing the treatment literature agreed on which practices are included in the different empirically supported treatments. This was followed by analyses that examined the stability of treatment practice element reports on the MTPS.

In the 2004 biennial report, the CAMHD EBS committee described the reliability with which treatment practices were identified during their literature review as follows:

> Reliability was examined in three different ways. First, scores were calculated for each rater to determine their average discrepancy from the group average. High scores would therefore indicate that a specific judge systematically rated protocols in a manner different from the other judges. In this analysis, no judge emerged as unreliable. Second, agreement between raters (intraclass correlation) was calculated to ensure the reliability for each of the 55 codes. On initial analysis, the majority of codes demonstrated adequate reliability (i.e., ICC > .65). To address codes demonstrating poor reliability, teams identified all codes for which team agreement was lower than 60%, and then returned to the protocol descriptions to confirm the correct coding for those specific codes. In all instances but two, these disagreements were resolved unambiguously. The two exceptions emerged in our third reliability analysis, which examined average reliability across all codes for a given manual. For the manual Multisystemic Therapy (MST) and the study description of Rational Emotive Therapy, both Level 2 interventions, there was a widespread disagreement on practice element codes. The codes for MST involved two groups of judges: those who coded all "adjunctive" techniques as part of the protocol, and those who coded only the main techniques. Upon committee discussion, it was resolved to take the more conservative approach and to code only the main MST strategies, thus addressing the reliability issues of that manual. For Rational Emotive Therapy, further committee discussion did not resolve the disagreements, and the committee considered contacting the author, coding an alternative source, or omitting the data. The author was contacted, but could provide no information as to the protocol content (the study was over 25 years old). The Committee therefore decided to omit the data.

Thus, the EBS committee concluded that the CAMHD practice element codes could be reliably applied to the identification of specific treatment practices that were included in published reports of empirically supported treatment protocols. In other words, the EBS committee reliably identified what treatment should look like for various problems.

To examine whether the MTPS provided stable identification of actual treatment practices, the one-month and three-month stability of the practice element codes were examined. As with the MTPS target stability analysis, this

analysis was not a true reliability estimate in that the month-to-month variability was expected to include both measurement error and true changes to the treatment program during the period. To prepare for the stability examination, all of the open-ended responses to the Other practice items were reviewed and reclassification was attempted. In response to this effort, the 17 new categories of Anger Management, Animal or Plant Assisted Activities, Arousal Reconditioning, Art/Music Therapy, Assessment, Behavior Management, Behavioral Contracting, Care Coordination, Counseling, Cultural Training, Family Visit, Goal Setting, Ho'Oponopono, Informal Supports, Juvenile Sex Offender Treatment, Legal Assistance/Involvement, and Parenting were included in subsequent analyses. Theoretically, respondents could have reduced many of these categories to other elements (e.g., behavior management into tangible rewards, time out, etc.), but they were included to avoid discarding this broader information altogether.

Findings indicated that the average kappa coefficient for the one-month stability estimates was in the good range (.65) across all of the predefined practice elements and the write-in practice elements (.67). Table 10 illustrates that the majority of targets displayed average stabilities in the good to excellent range. As expected due to a longer time duration, examination of three-month stabilities yielded average kappas that tended to be approximately one range lower (e.g., kappas dropped by approximately .15 points; .50 for predefined practices). Taken together these findings indicate that provider reports of treatment practices on the MTPS were relatively stable from month-to-month, but also reflect of moderate degree of change as would be expected as treatment practices evolve over the course of therapy.

*Measurement Summary*

Taken together, these analyses indicate that the measurement of problem areas and treatment practices is occurring with a moderate degree of reliability that is relatively consistent across measures (e.g., diagnoses & targets). Because these analyses were conducted using available clinical data collected during active treatment episodes, it is not possible to clearly distinguish true change from unreliability. Further, the examination of reliability does not provide support for the validity of these measures, but the observed convergent and discriminant relations between diagnoses and targets (Table 9) supply some evidence for validity of these measures. Future study will be necessary to evaluate the inter-rater reliability and validity of the practice elements reported on the MTPS. Nevertheless, these moderate reliability estimates provide preliminary support for the quality of these measurements and yield cause for cautious optimism should future validity studies be conducted. Continued training, ongoing development of definitions for the MTPS codes, and consideration of structured interviews for diagnostic assessment might all contribute to improving reliability into the good to excellent range for these measures.

Table 10. Summary of the one-month stability estimates for practice elements reported on the Monthly Treatment and Progress Summary.

| Excellent ($\kappa \geq .75$) | Good ($\kappa = .60 - .74$) | Fair ($\kappa = .40 - .59$) | Poor ($\kappa < .40$) |
|---|---|---|---|
| Anger Management | Activity Scheduling | Cognitive/Coping | Assessment |
| Animal or Plant Assisted Activities | Assertiveness Training | Crisis Management | Care Coordination |
| Arousal Reconditioning | Biofeedback/Neurofeedback | Directed Play | Eye Movement_Body Tapping |
| Art/Music Therapy | Catharsis | Guided Imagery | Goal Setting |
| Behavior Management | Commands/Limit Setting | Marital Therapy | |
| Cultural Training | Communication Skills | Motivational Interviewing | |
| Functional Analysis | Counseling | Other | |
| Ho'Oponopono | Educational Support/Tutoring | Parenting | |
| Informal Supports | Emotional Processing | Problem Solving | |
| Juvenile Sex Offender Treatment | Exposure | Psychoeducational Child | |
| Line of Sight Supervision | Family Engagement | Relationship/Rapport Building | |
| Milieu Therapy | Family Therapy | | |
| Response Cost | Free Association | | |
| Stimulus Control/ | Ignoring or DRO | | |
| Antecedent Management | Insight Building | | |
| Twelve Step Programming | Interpretation | | |
| | Legal Assistance/Involvement | | |
| | Maintenance/Relapse Prevention | | |
| | Medication/Pharmacotherapy | | |
| | Mentoring | | |
| | Mindfulness | | |
| | Modeling | | |
| | Natural and Logical Consequences | | |
| | Parent Coping | | |
| | Parent Monitoring | | |
| | Parent Praise | | |
| | Peer Modeling/Pairing | | |
| | Play Therapy | | |
| | Psychoeducational Parent | | |
| | Relaxation | | |
| | Response Prevention | | |
| | Self-Monitoring | | |
| | Self-Reward/Self-Praise | | |
| | Skill Building/Behavioral Rehearsal | | Insufficient Data to Analyze |
| | Social Skills Training | | |
| | Supportive Listening/Client-Centered | | Hypnosis |
| | Tangible Rewards | | Behavioral Contracting |
| | Therapist Praise/Rewards | | Family Visit |
| | Thought Field Therapy | | |
| | Time Out | | |

Relevance and Coverage

Once measurement properties are reasonably established, the next substantive question focused on whether the collection of treatments identified as empirically supported by the EBS committee were relevant to and provided sufficient coverage for the actual CAMHD population. In other words, what percent of CAMHD youth had an evidence-based service identified in the EBS committee literature review? This question was evaluated both in terms of the percent of youth with a diagnosis in one of the EBS problem areas and the percent of youth with a treatment target in one of the EBS problem areas.

Specifically, each of the diagnostic codes and treatment targets were coded into one of the following problem area categories from the Hawaii evidence-based service committee reports: anxiety and avoidant, attention and hyperactivity, autism spectrum disorder, bipolar disorder, depressed and withdrawn, disruptive or oppositional, eating disorders, delinquency and willful misconduct, psychotic disorders or schizophrenia, substance-related disorders. Diagnostic codes and treatment targets that did not fit into one of the EBS problem areas were coded as such. To provide conservative coverage estimates, judges applied strict guidelines for applying these codes and were instructed to classify ambiguous instances in the *not included in EBS problem areas* category. Agreement between judges was very high (99%).

Results indicated that 33% of youth with diagnostic information available had a pure diagnosis for which an evidence-based treatment was available, 89% youth had a primary diagnosis for which an evidence-based treatment was available, and 94% youth had at least one diagnosis (primary or additional) for which an evidence-based treatment was available. Approximately one in three (30%) youth had at least one primary or additional diagnosis for which an evidence-based treatment was not available, and therefore an evidence-based treatment existed for all diagnoses of 70% of the youth with a mental health disorder.

A similar pattern of findings was evident when provider reports of treatment targets were examined. Of the youth with treatment target information available, 90% had one or more problem areas targeted for intervention for which an evidence-based treatment was available. Almost all youth (97%) had one or more treatment targets for which an evidence-based service was not available, and thus only 3% (n = 41) of youth had an evidence-based service available for every problem that was the target of treatment. The latter finding is consistent with the MTPS instructions allowing providers to report up to 10 treatment targets per month and the use of a strict instruction set for coding targets into the EBS problem areas (e.g., depressed mood was coded as a target in the depressed and withdrawn behavior EBS category, but suicidality was not because it might overlap with borderline personality problems). Table 11 and a recent report by Schiffman, Becker, and Daleiden (2004) provide additional details regarding this analysis.

Table 11. Percent of youth with primary diagnosis and percent of youth with any treatment target in each of the evidence-based service (EBS) problem area.

| EBS Problem Area | Primary Diagnosis N (%)[a] | Treatment Target N (%)[b] |
|---|---|---|
| Attention and Hyperactivity | 26% | 27% |
| Disruptive Behavior | 24% | 64% |
| Depressed and Withdrawn | 20% | 41% |
| Anxiety and Avoidant | 8% | 45% |
| Bipolar Disorder | 5% | 2% |
| Substance Related Disorders | 3% | 37% |
| Psychotic Disorders/Schizophrenia | 1% | 3% |
| Autism Spectrum Disorders | 1% | 0% |
| Eating Disorders | 0.2% | 5% |
| Not Included in EBS Problem Areas | 10% | 97% |
| No Diagnosis | 1% | - |

Note: [a] Describes percent of youth with available diagnostic information; [b] Describes whether youth have one or more treatment targets coded in the problem area.

*Relevance and Coverage Summary*

Taken together, these results indicate that approximately 9 out of every 10 youth receiving services through the CAMHD have primary problems for which at least one evidence-based treatment is available. Yet, many youth have additional problems that were reported as the target of treatment for which evidence-based treatments have not yet been identified. The most common diagnoses for which empirically supported treatments were not yet identified

included adjustment disorders with mixed disturbances, reactive attachment disorder, learning/communication/academic disorders, intermittent explosive/impulse control disorders, cognitive disorder NOS/dementia due to HIV, and neglect/physical/sexual abuse of the child. A variety of disorders were represented but occurred with very low rates as primary problems (e.g., personality disorders, paraphilias, selective mutism, and trichotillomania). It is recommended that the EBS committee consider expanding its literature review to address the more common but currently uncovered domains.

Implementation

Since most youth receiving services from CAMHD have a primary problem for which an evidence-based service was identified by the EBS committee review, the next question addressed how closely the actual therapeutic practices reported on the MTPS match the practices identified for the problem in the EBS committee review. To examine this issue, the four most common primary diagnostic problem areas with empirically supported treatments identified were examined, namely attention and hyperactivity, disruptive behavior, depressed and withdrawn, and anxious and avoidant (see Table 11).

This analysis began by constructing "practice profiles" based on the EBS committee's literature review by coding treatment protocols used for the treatment conditions in the reviewed studies. Specifically, all treatments that qualified as empirically supported at Level II Good Support or better for each problem area were identified. These treatment protocols then were coded for practice elements they contain. Finally, the proportion of all treatments that used each of the identified practice elements was calculated. These results are illustrated in the second column of figures 13 to 16. For example, the most common practice element reported in empirically supported treatments for attention and hyperactivity problems was tangible rewards. This was defined as "The training of parents or others involved in the social ecology of the child in the administration of tangible rewards to promote desired behaviors. This can involve tokens, charts, or record keeping, in addition to first-order reinforcers" (for complete definitions see CAMHD, 2003). This technique was used in 92% of the treatments that were identified by the EBS committee review as empirically supported for attention and hyperactivity (see Figure 13).

To compare these EBS profiles to the actual care profiles constructed based on MTPS reports, several indices were calculated. First, the total number of practices endorsed on the MTPS was calculated. Next, the proportion of these actual practices that were identified as empirically supported in one or more studies was calculated, as was the proportion of the total practices that were not identified as empirically supported for the problem. On average, approximately 19 – 20 practices were endorsed per youth at one or more times during the fiscal year. The use of empirically supported practices varied by problem area from a low of 45% for youth with diagnoses in the attention and hyperactivity category to a high of 64% for youth with anxiety and avoidant diagnoses (see Table 12).

Table 12. Summary of evidence-based and non-evidence based practices by problem area.

| EBS Problem Area | Total Practices (N) | EBS Practices (%) | Non-EBS Practices (%) |
|---|---|---|---|
| Attention and Hyperactivity | 19.3 | 45% | 55% |
| Disruptive Behavior | 19.7 | 58% | 42% |
| Depressed and Withdrawn | 19.9 | 53% | 47% |
| Anxiety and Avoidant | 20.3 | 64% | 36% |

While this initial analysis provides an indication the relative use of empirically supported to non-empirically supported practices, it does not represent how many of the identified empirically supported practices were used in actual CAMHD care setting. Therefore, the proportion of empirically support practices that were used in actual care was calculated. Because some practices in empirically supported treatment groups were used more widely than other, a final set of indexes were calculated to "weight" the actual practice based on the proportion of study groups that used each practice. Specifically, the average "weight" per empirically supported practice was calculated. This was achieved by identifying all empirically supported practices used with a youth and then calculating the average proportion of study groups [in EBS literature review] that included these practices. These indices were then compared across actual care as reported by the MTPS and the empirically supported treatment protocols as coded by the EBS committee.

Table 13. Comparison of empirically supported practices selected for use in actual care to practices represented in the evidence based services literature.

| EBS Problem Area | Actual Care EBS Practices (%) | Literature EBS Practices (%) | Actual Care Ave. Weight per Practice (%) | Literature Ave. Weight per Practice (%) |
|---|---|---|---|---|
| Attention and Hyperactivity | 38% | 39% | 38% | 66% |
| Disruptive Behavior | 45% | 35% | 34% | 48% |
| Depressed and Withdrawn | 45% | 39% | 44% | 54% |
| Anxiety and Avoidant | 49% | 18% | 14% | 51% |

Two common patterns emerged from this comparison (see Table 13). First, with the exception of treatment for attention and hyperactivity problems, treatment selection in actual care tended to use a wider variety of treatment practices than the empirically supported protocols. Second, the practices that were used for actual care tended to be those that were less commonly used in empirically supported protocols. This pattern is most salient in the treatment of youth with anxiety and avoidant disorders. In addressing this specific problem area, actual care used, on average, approximately one-half (49%) of all empirically supported practices for all problem areas. In contrast, only one-sixth (18%) of such nonspecific practices were used for treatment groups in the EBS reviewed literature. Further, empirically supported practices specific to a problem area category (e.g., anxiety and avoidant disorder) represented only one-seventh (14%) of all practices used in actual care, whereas such practices represented one-half (51%) of all practices used in treatment groups in the EBS reviewed literature. Thus, use of empirically supported practices in actual care appears to be less specific or prescriptive to the problem area category than is suggested by the empirically supported treatment literature. For any given problem area, empirically supported practices specifically addressing such problem area were used less often in actual care setting than in outcome study setting.

One potential argument for this broader practice focus in actual care setting is that the actual care population tends to have high rates of comorbidity, which calls for use of broad-based treatment interventions. Figures 13 to 16 provide additional details about the use of specific practices compared to evidence-based literature in groups with pure (i.e., single diagnosis) and primary diagnostic patterns. Global inspection of these figures illustrates that relatively similar practice patterns were evident in the actual care of pure and primary diagnostic groups. However, given that primary diagnostic groups also included some cases with comorbid disorders, practices endorsed for these groups may have been of a wide range. This tendency was observed in the examination of the anxiety and avoidant problem area, where less frequent evidence-based services and non-evidence based services were used to address the primary diagnostic group in actual care setting (Figure 16). Specifically, the last four practices (i.e., free association, marital therapy, catharsis, and twelve-step programming) are endorsed in the primary diagnostic group but not the pure diagnostic group. Nevertheless, the previously described pattern of less focused, less common empirically supported practice use (Table 13) is evident in both the pure an primary diagnostic group. This is readily observable by examining the first practice element, exposure, which was used in 97% of empirically supported treatment groups in the literature, but with only 17% of the pure diagnostic group and 9% of the primary diagnostic group in actual care.

Several key issues must be kept in mind to accurately interpret figures 13 to 16. First, although these figures include the practice element of medication/pharmacotherapy, the EBS committee did not include studies of medication in their practice element coding unless the medication was used with or compared to a psychosocial intervention. Thus, the column describing the proportion of EBS study groups including medication/pharmacotherapy is not a comprehensive representation of whether or not pharmacotherapy is supported for the problem area. Second, the practice elements vary in their level of abstraction and multiple different specific procedures may be coded as similar practices. For example, cognitive/coping interventions could include cognitive restructuring, decatastrophizing, positive self-statements, etc. Thus, although these categories may be useful for summarizing similar practice elements, many details are ignored in this generalization and such details must be reconsidered when applying these practices back to the guidance of care. Accordingly, these analyses are presented with the intention of describing what has been reported not prescribing what should be done. For the latter, the biennial report of the EBS committee (CAMHD, 2004), the interagency performance standards and practice guidelines (Departments of Education and Health, 2002), and the protocols for specific treatment programs should be consulted.

Figure 13. Attention and Hyperactivity. Practice element profiles illustrating the percent of study groups coded as qualifying in the category *Level II Good Support* or better, the proportion of youth with a pure and primary diagnosis that actually received each practice element for one or more months during the fiscal year. Solid symbols identify those practice elements that were included in at least one qualifying research study and open symbols indicate practice elements that were not included in the qualifying studies.

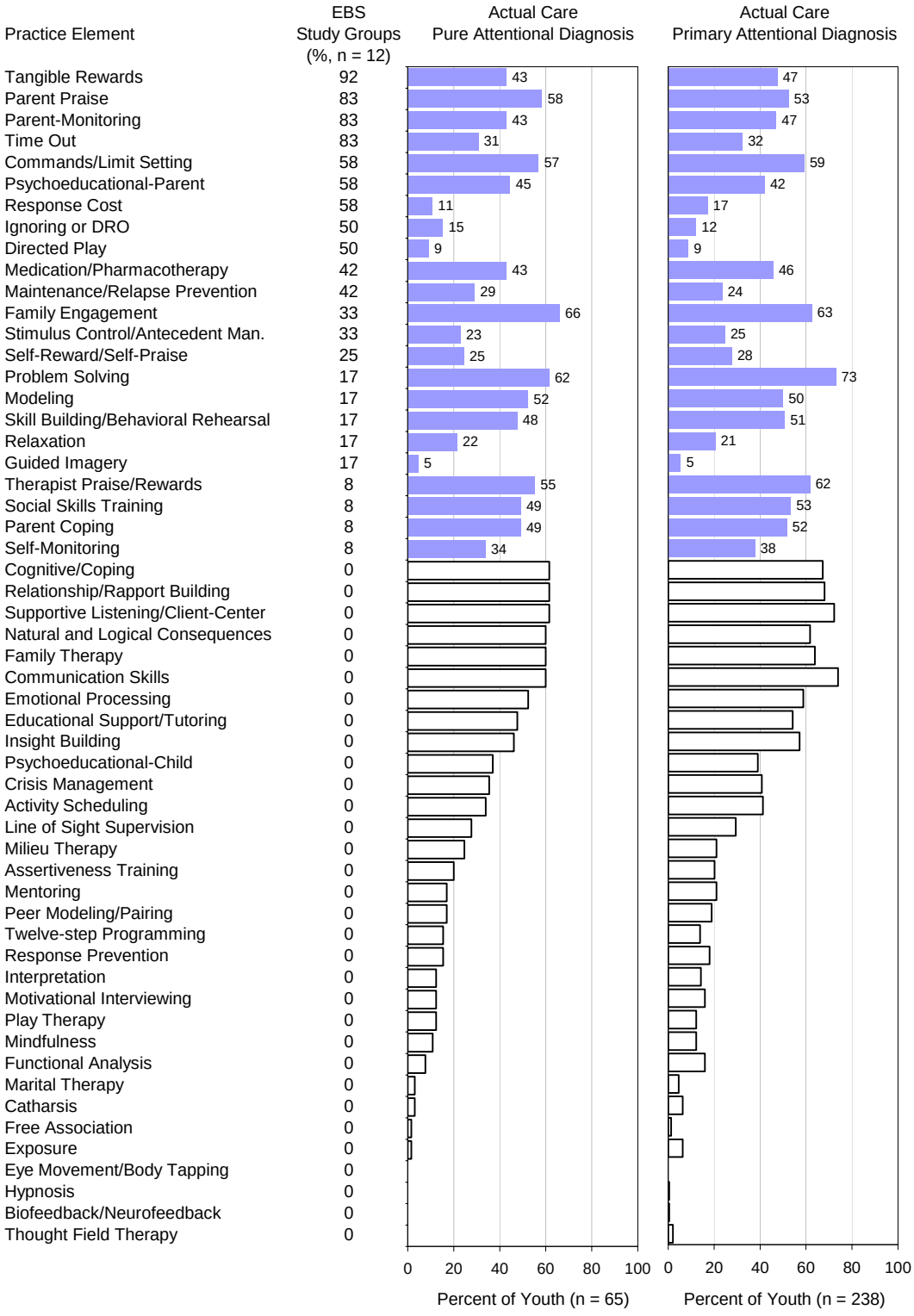


Figure 14. Disruptive Behavior. Practice element profiles illustrating the percent of study groups coded as qualifying in the category *Level II Good Support* or better, the proportion of youth with a pure and primary diagnosis that actually received each practice element for one or more months during the fiscal year. Solid symbols identify those practice elements that were included in at least one qualifying research study and open symbols indicate practice elements that were not included in the qualifying studies.

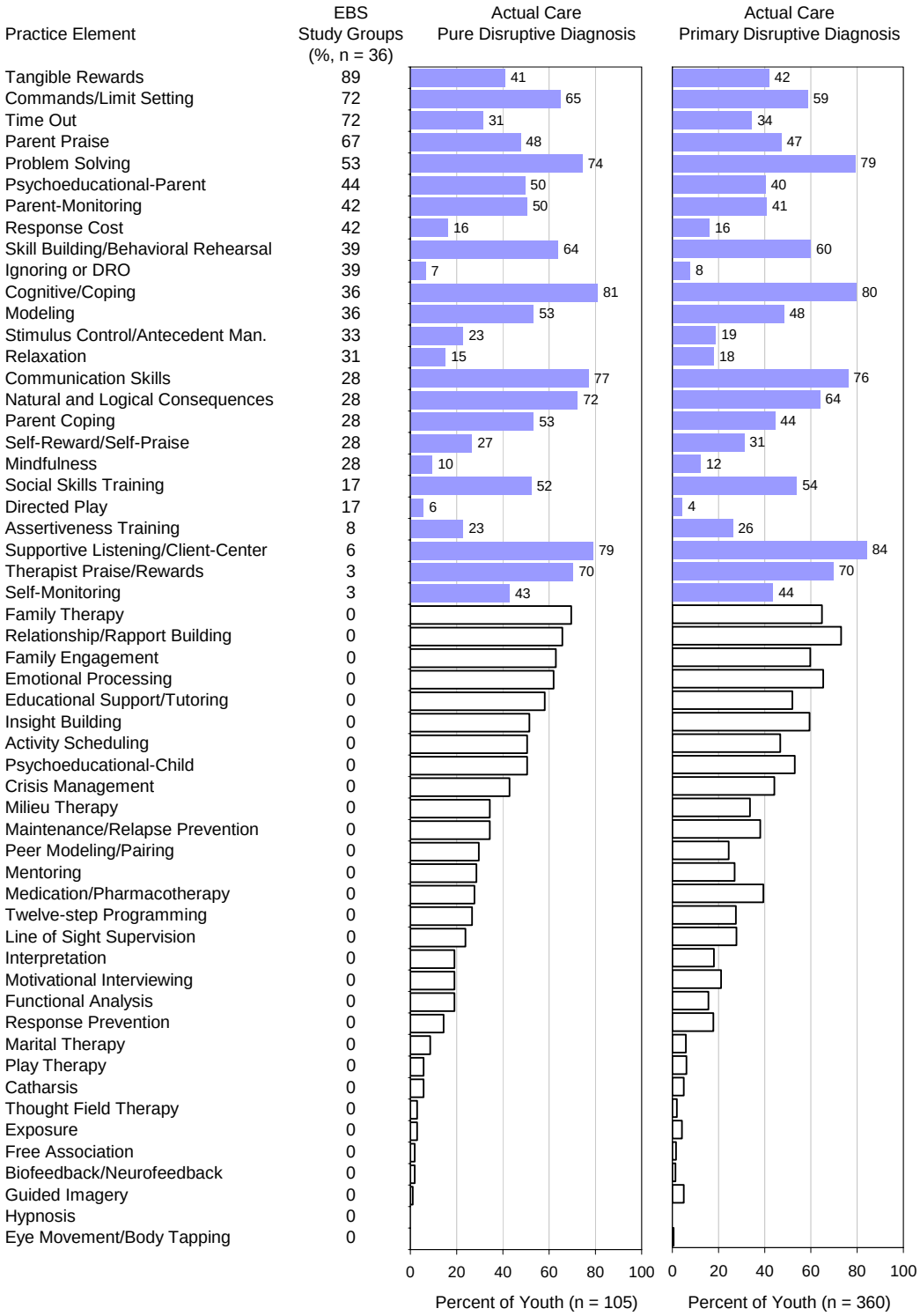


Figure 15. Depressed and Withdrawn. Practice element profiles illustrating the percent of study groups coded as qualifying in the category *Level II Good Support* or better, the proportion of youth with a pure and primary diagnosis that actually received each practice element for one or more months during the fiscal year. Solid symbols identify those practice elements that were included in at least one qualifying research study and open symbols indicate practice elements that were not included in the qualifying studies.

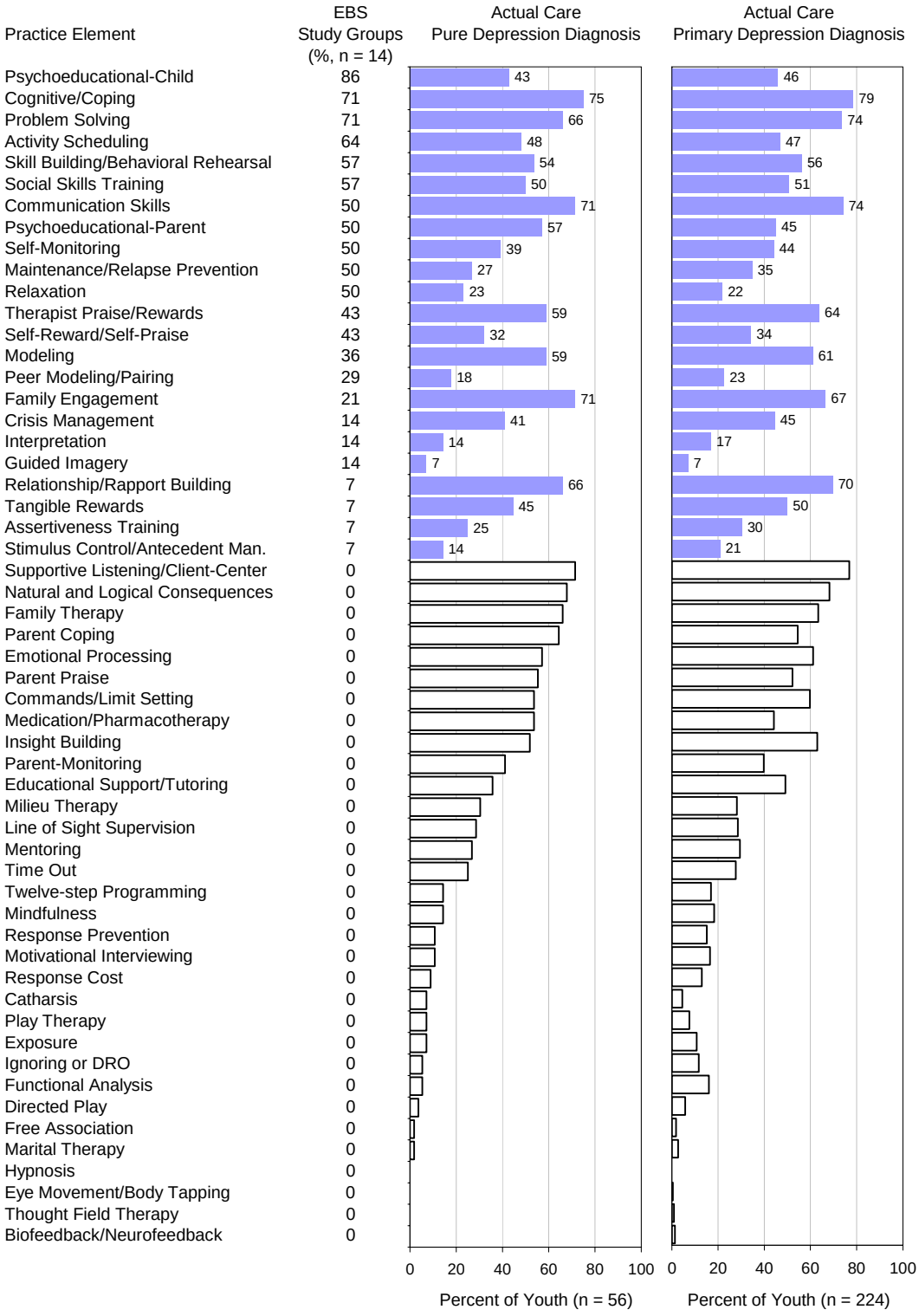


Figure 16. Anxiety and Avoidant. Practice element profiles illustrating the percent of study groups coded as qualifying in the category *Level II Good Support* or better, the proportion of youth with a pure and primary diagnosis that actually received each practice element for one or more months during the fiscal year. Solid symbols identify those practice elements that were included in at least one qualifying research study and open symbols indicate practice elements that were not included in the qualifying studies.

*Implementation Summary*

Comparing the empirically supported practices identified in the research literature to the practices reported as part of usual care led to several findings. First, treatment for the four most prevalent problem areas (i.e., attention and hyperactivity, disruptive behavior, depressed and withdrawn, and anxiety and avoidant) include a moderate number of empirically supported practices. Second, treatment of these problems also included a moderate number of practices that were not empirically supported. Third, when evidence based practices were reported, they tended to be of greater variety and of less frequently supported practices than the average structured treatment protocol. Finally, treatment for youth with single "pure" disorders was not notably more congruent with structured treatment protocols than was treatment for youth with "primary" disorders, which may include comorbid conditions. However, as expected due to comorbidity, a somewhat wider variety of practices were used with the primary diagnostic group.

## Summary and Conclusions

Overall Summary

In general, the past year has been characterized by stabilization of CAMHD's population and services. The overarching finding over the prior three years was that of statewide decline in CAMHD's population (Daleiden, 2003). This decline was greatly reduced this year with some geographic regions showing absolute growth. Population expansion occurred in the areas of health- (i.e., QUEST) and juvenile justice-related services. CAMHD also increased its service output in terms of the number of youth with services procured and the total number of service hours procured. This increased output was associated with increased input of financial resources. This expansion of services occurred in a system that was less efficient due to increases in contracted rates for providers and increased utilization of moderately restrictive out-of-home services, most notably community residential services. Analysis of child functioning and service needs found that the majority of youth experience better lives during the time that they receive services from CAMHD, and that youth are achieving such improvements at a more rapid pace in recent years.

Although the majority of CAMHD's youth are experiencing better lives, room for improvement remains. Focused evaluation of CAMHD's evidence-based services initiatives provided both reason for optimism and cause for determined change. The primary measurements of targets for treatment (i.e., diagnosis & monthly treatment and progress summary) were found to be of fair, but generally not good, stability over short time periods. These measures bore meaningful relations to one another, which provides a basis for their validity. Specific treatment practices were reliably coded by the Evidence-Based Services committee and were fairly stable. The vast majority of CAMHD youth had problems for which evidence-based services were available, yet a portion had additional problems for which empirically supported practices were not available. Comparison of actual care to empirically prescribed practices found that actual care included both evidence-based and non-evidence based practices. Further, actual care tended use a greater variety of practices and to rely on less frequently supported practices than the typical empirically supported protocol.

Services

CAMHD services continued a multiyear trend of increased utilization of out-of-home services. Utilization of the most restrictive services (i.e., out-of-state & hospital residential) remained low, but some increases in hospital residential services were apparent. Large increases in the size, service hours, and expenses of community residential services over the past year were the most striking findings, as this was recommended as an area for targeted reduction by CAMHD's Performance Improvement and Steering Committee based on the FY 2003 evaluation. Multisystemic therapy and community high-risk residential services were relatively new services that had consistently grown in prior years, but both experienced declines in utilization and efficiency during FY 2004. This may represent a natural pause in services as the result of these services working through the "backlog" of needy youth that justified creation of these services and transitioning to the ongoing incidence of new cases in need of these services. Alternatively, the novelty of these services and the effects of initial marketing efforts may have reduced over time and shifting focus to other priorities may result in lower salience or preference for these services. Regardless of the cause of reduced utilization, these services merit heightened attention to maintain efficiency due to their contractual structure.

Out-of-Home Services

As noted in the FY 2003 evaluation, the trend toward increasing out-of-home services may initially seem to counter to the system value on least restrictive treatment, but in broader context widespread concern does not seem warranted. Expansion of the CAMHD population into previously neglected domains (i.e., QUEST, juvenile justice) may be associated with priority identification of youth with a high level of service needs. Further, positive developments in the school-based behavioral health program may yield effective management of more youth at lower levels of care and reduce the need for intensive home and community services. Thus, it seems that the increased placement in out-of-home services has coincided with continued improvements in functioning and regular discharges. Therefore, while out-of-home placement is not a desirable first order treatment, out-of-home placements appear to provide an important setting for therapeutic change and appear to be reasonably used with a variety of CAMHD's youth. Nevertheless, the rapid growth in community residential service utilization may raise some cause for concern. If CAMHD's population is indeed turning a corner to enter a period of absolute growth driven by expanded health- and juvenile justice-related services, then CAMHD must be prepared develop new residential facilities as the current facilities near their licensed maximums.

Child Status

The majority of youth entering CAMHD experience improvements in their functioning and decreased service needs that prepare them for successful management in outpatient services. Further, evidence from parent, teacher, and professional report measures consistently indicated that the rate of child improvement has increased in recent years. These improvements have coincided with (a) dissemination of evidence-based services and practice guidelines, (b) ongoing training, mentoring and supervision in care coordination practices, (c) building clinical and administrative reporting systems, (d) adopting performance measures system-wide, (e) restructuring quality improvement and practice-focused performance management processes, and (f) improving clinical review and utilization management, but the specific causes of such improvements is not known.

Efficiency

CAMHD increased its total system output by serving a greater number of youth at a higher intensity. These increases in output were associated with an increase in input of total service expenditures and a somewhat lower fiscal efficiency (i.e., increased cost per hour and cost per youth). This greater investment coincided with more rapid improvements in child status and with an increase in reimbursement rates for contracted providers. Thus, CAMHD generated positive outcomes for more youth based on a somewhat greater financial investment in an era of healthcare inflation.

Evidence-Based Services

Consistent with much of the national research literature, CAMHD's core strategy for identifying evidence-based services is based on matching empirically supported treatments to specific problem areas. Analysis of the reliability with which CAMHD identifies problem areas (i.e., diagnoses & treatment targets) indicated that such identification practices are mediocre but evince some validity. They provide a basis on which to build, but could use improvement. The same can be said of practice assessment. Meaningful relationships are evident using CAMHD's practice codes, but continued training and refinement for the assessment of actual care is warranted.

CAMHD's evidence-based services guidelines identify empirically supported treatments for the vast majority of primary problems experienced by youth receiving CAMHD's services. Nevertheless, CAMHD's youth also experience problems for which empirically supported treatments have not yet been identified, such as adjustment disorders with mixed disturbances, reactive attachment disorder, learning/communication/academic disorders, intermittent explosive/impulse control disorders, cognitive disorder NOS/dementia due to HIV, and neglect/physical/sexual abuse of the child.

The information from the monthly treatment and progress summary was fruitfully compared to the profile of practices constructed from the EBS committee review of empirically supported treatment protocols. Actual care for youth's most common problems (i.e., attention and hyperactivity, disruptive behavior, mood disorders, and anxiety disorders) included a variety of evidence-based practices but also included many non-evidence-based practices.

Compared to empirically supported protocols, actual care tended to use a greater variety of practices that received less frequent support in research studies. Taken together, results seem to suggest that CAMHD providers have adopted a number of common practices that are incorporated in evidence-based protocols (e.g., cognitive & coping interventions, problem-solving, communication skills) have been widely trained under the rubric of cognitive-behavioral therapy. However, the pattern of endorsement also suggests that many providers are not likely to be closely adhering to specific protocols that are discretely matched to the individual youth's primary problem.

With respect to inclusion of non-evidence-based practices, some of this may be appropriate and some may reflect inefficiencies. For example, many of the common elements of therapy (e.g., relationship & rapport building, supportive listening) might be appropriately used with almost all youth and may represent an engaging style. The potential risk of inefficiency enters when these occur in isolation and are relied on as the core therapeutic change tactic. Use of a diversity of non-evidence-based practices might also appropriately reflect the multiple problems and complex circumstances encountered by CAMHD youth. At the same time, such diversity could reflect lack of therapeutic focus, use of ineffective strategies, and provision of non-therapeutic services as part of a milieu.

Taking the empirically supported protocols as a guide, it is reasonable to advise that CAMHD service providers and reviewers, whether private therapists or public employees, make a habit of continually reviewing the focus of treatment. Providers might ask themselves whether the most commonly supported practices have been tried with their client and whether the practices were implemented with sufficient focus, persistence, dosage, and quality. The availability of the practice profiles from the evidence-based service committee and the data from the MTPS are now available to facilitate this reflection. As noted in the coverage analysis, the EBS practice profiles are not relevant to all CAMHD clients, but they are relevant to the vast majority of youth, a sizable minority of who have pure diagnostic profiles.

## Wrap-up

This report has summarized many analyses and findings from CAMHD's fiscal year 2004 annual evaluation. Reporting findings is but the first step in the process of promoting system improvement based on evidence. This report gives little attention to the implications of these findings for CAMHD policies and operations. As successfully implemented last year, the next steps are to present and discuss these findings at the various stakeholder groups and committees that constitute CAMHD's quality management structure. Based on these discussions, an addendum to this report should summarize the policy and practice recommendations appropriate to these findings.

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